Azadi Ka Amrit Mahotsav

सत्यमेव जयते
Government of India

ECONOMIC SURVEY

2021-22

VISIT…

Economic Survey 2021-22

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Preface

For second year running, the Economic Survey was written under the cloud of the Covid-19 pandemic. These have been difficult times for the world economy. It is not just about the immediate disruptions and uncertainty caused by repeated waves of the pandemic, but also the longer-term uncertainty about the post-Covid world due to accelerated shifts in technology, consumer behaviour, supply-chains, geo-politics, climate change and a host of other factors. Not only are these individual factors difficult to forecast, the impact of their interactions are fundamentally unpredictable. The theme of this Economic Survey, therefore, relates to the art and science of policy-making under conditions of extreme uncertainty.

The default mode of policy-making in India and most of the world has traditionally been to rely on a pre-determined "Waterfall" approach – an upfront analysis of the issue, detailed planning and finally meticulous implementation. This is the framework that underpins five-year plans and rigid urban master-plans. The problem is that the real world is a complex and unpredictable place buffeted by all kinds of random shocks and unintended consequences. The response of traditional economics was to create ever more detailed plans/regulations, and elaborate forecasting models despite more than adequate evidence that this did not improve outcomes. In his Nobel Prize acceptance speech, economist Friedrich Hayek dubbed this "The Pretence of Knowledge".

This Economic Survey sets out to explain the alternative "Agile" approach that informed India's economic response to the Covid-19 shock. This framework is based on feed-back loops, real-time monitoring of actual outcomes, flexible responses, safety-net buffers and so on. Planning matters in this framework but mostly for scenario-analysis, identifying vulnerable sections, and understanding policy options rather than as a deterministic prediction of the flow of events. The last Economic Survey did briefly discuss this approach, but this time it is a central theme.

Some form of feedback loop based policy-making was arguably always possible, but the Agile framework is particularly relevant today because of the explosion of real-time data that allows for constant monitoring. Such information includes GST collections, digital payments, satellite photographs, electricity production, cargo movements, internal/external trade, infrastructure roll-out, delivery of various schemes, mobility indicators, to name just a few. Some of them are available from public platforms but many innovative forms of data are now being generated by the private sector. Short-term policy responses, therefore, can be tailored to an evolving situation rather than what a model may have predicted.

The same recognition of uncertainty informs the longer-term supply-side strategy: the combination of policies that encourage economic flexibility through innovation, entrepreneurship and risk-taking on one hand, and simultaneously invests in resilient infrastructure, social safety-nets and macro-economic buffers on the other. Thus, it is hoped that readers will be able to see the links between seemingly disparate policies ranging from deregulation, process simplification, privatization, foreign exchange reserves accumulation, inflation-targeting, housing-for-all, green technology, the Insolvency and Bankruptcy Code, health insurance for the poor, financial inclusion, infrastructure spending, direct benefit transfers and so on. They are all about protection from or taking advantage of an uncertain future.

As readers would have noticed, this Economic Survey has shifted from the two-volume format of recent years to a single volume plus a separate volume for statistical tables. In this context it is worthwhile looking at a brief history of the document. The Survey was first published in 1950-51 and was initially part of the Budget documents. The document was less than 50 pages in the 1950s and contained a brief outline of economic developments of the previous year. For example, the Survey of 1957-58 had just 38 pages. It was primarily descriptive and contained little in the way of analysis and policy prescriptions.

From 1958-59, the length of the survey started increasing with the introduction of more charts and tables. A Hindi translation also seems to have been initiated around this time. The ambition of the document increased significantly in the sixties. The Survey of 1962-63 was divided into two parts where the first part focused on broader economic

developments while the second part gave a basic analysis of different sectors. The following year, the Economic Survey was separated from the budget and was presented a day earlier as a stand-alone document. This was the first Survey that saw the introduction of a statistical appendix. The sixties also saw several experiments with the format. In some years, the sections were done by themes such Recession and Measures of Revival, Control of inflation, and Food Shortage. In other years, it was done by sectoral sections such as Industry, Agriculture and Prices.

By 1970, the length of the Economic Survey had already crossed 150 pages with a detailed list of tables. The format was further refined in the seventies and eighties with sections being transformed into chapters. This is the phase that developed the format that is broadly recognizable today. The 1980s saw a consistent rise in the length of the document with the introduction of new chapters. By 1990, the length of the Economic Survey had reached close to 250 pages including the statistical appendix.

The Indian economy went through a major crisis and subsequent reforms in 1991, and the Economic Survey of 1991-92 was eagerly awaited. This was the first survey that was brought out in two volumes although the first volume was a short booklet of 27 pages that highlighted the macroeconomic problems facing the country while the second volume reviewed the various sectors in detail. In subsequent years, the survey reverted to one volume with a few modifications in the number of chapters. The beginning of the 21st century saw another transformation of the Economic Survey with introduction of better graphics and brighter colors. The length of the survey, meanwhile, crossed 380 pages by the early 2000s.

In 2007-08 and 2008-09, in the middle of a global financial crisis, an analytical chapter was added about the country's medium-term challenges and macro-economic prospects. From here onwards, more thematic chapters were included each year. In 2011-12, document was 485 pages spread over thirteen chapters and the statistical appendix. In 2013-14, the statistical appendix was separated out and published as a separate volume. In the following year, the Survey was presented as two volumes: Volume 1 had a number of chapters addressing topical policy concerns, while Volume 2 carried the traditional Economic Survey along with the statistical appendix. This format was continued till last year with the length of document steadily going up. Moreover, an attempt was made in the last three Surveys to ensure that the Volume 1 chapters adhered to a broad theme rather than appeared as stand-alone papers. The Economic Survey 2020-21 consisted of 335 pages in Volume 1, 368 pages in Volume 2 and a statistical appendix of 174 pages - a total of 877 pages!

As one can see, the Economic Survey has gone through a great deal of evolution over the decades. The two volume format did allow space for bringing in new ideas and themes but, at almost 900 pages, it was also becoming unwieldy. It was also felt that the thematic chapters of Volume 1 were not adequately linked to the sectoral chapters of Volume 2. Therefore, this year's Survey reverts to a single volume plus a separate volume for the Statistical Appendix. Along with the sectoral chapters, a new chapter has been added that demonstrates the use of satellite and geo-spatial images to gauge various economic phenomenon – urbanization, infrastructure, environmental impact, farming practices and so on. The idea of having a separate volume for the statistical appendix is to give it a distinct identity as the one-stop source of authentic data. It is hoped that it will evolve in the next few years to include new kinds of socio-economic data in line with the emphasis on a feedback loop approach.

The publication of the Economic Survey is a team effort. It is only possible because of inputs from Ministries and institutions across the Government of India, industry bodies, think-tanks and individual experts. The officers and consultants of the Economic Division, Department of Economic Affairs, put in months of effort to write, compile, and edit the document. Doing it in the middle of a pandemic added special constraints. Nonetheless, we hope that the readers will find this year's document to be a lucid and insightful assessment of the country's economic trajectory.

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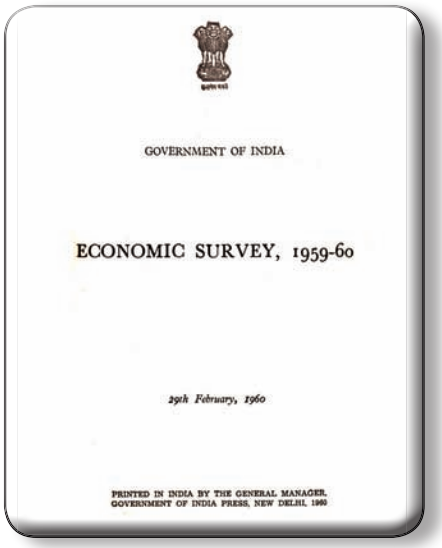
Cover Pages of previous Economic Surveys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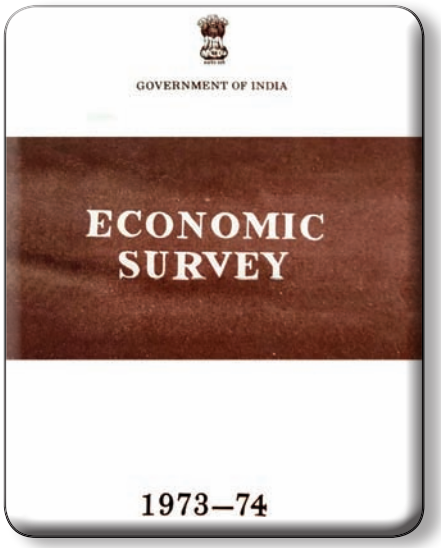
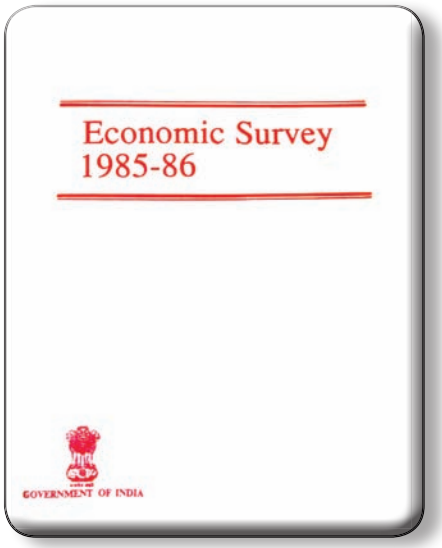
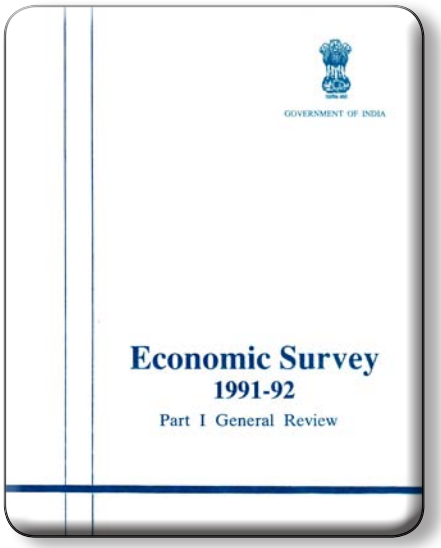
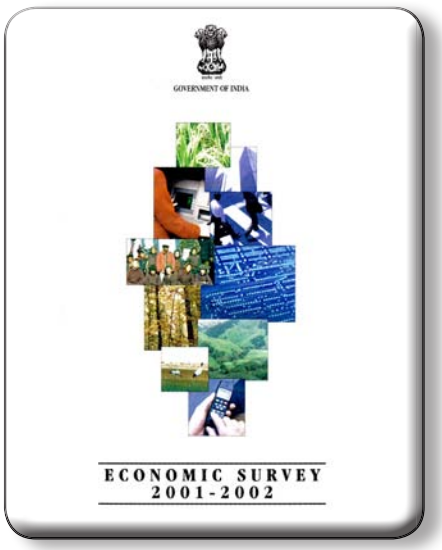
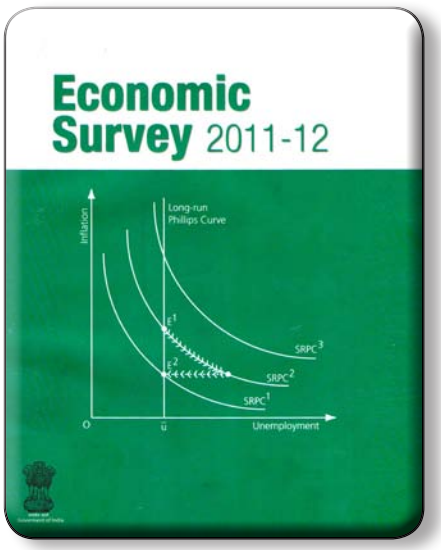










ABBREVIATIONS

AAI	Airports Authority of India+A2:A24
ABDM	Ayushman Bharat Digital Mission (erstwhile NDHM
AB-HWCs	Ayushman Bharat Health and Wellness Centres
AB-PMJAY	Ayushman Bharat Pradhan Mantri Jan Arogya Yojana
ABRY	Atmanirbhar Bharat Rojgar Yojana
ACC	Advance Chemistry Cell
AE	Advance Estimates
AEOs	Authorized Economic Operators
AGR	Adjusted Gross Revenue
AIPA	Apex Committee for the Implementation of Paris Agreement
AISAM	Air India Specific Alternative Mechanism
AISATS	Air India SATS (Singapore Airport Terminal Services) Airport Services Private Limited
AIXL	Air India Express Ltd.
AMI	Agricultural Marketing Infrastructure
ANB	Atma Nirbhar Bharat
APEDA	Agricultural & Processed Food Products Export Development Authority
API	Active Pharma Ingredients
APMC	Agricultural Produce Market Committee
ARHC	Affordable Rental Housing Complexes
ASEEM	Aatmanirbhar Skilled Employees Employer Mapping
ASER	Annual Status of Education Report
ASHA	Accredited Social Health Activist
ATMP	Assembly, Testing, Marking and Packaging
AUM	Assets Under Management
AWC	Anganwadi Centre
AWW	Anganwadi Worker
AYUSH	Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy
B&R	Bridge and Roof Co. (India) Limited
B2B	Business to Business
BBBP	Beti Bachao Beti Padhao
BCD	Basic Custom Duty
BCM	Billion Cubic Meters
BE	Budget Estimate
BEI	Business Expectation Index
BEML	Bharat Earth Movers Limited
BFSI	Banking Financial Services and Insurance
BG	Bank Guarantees
BISAG	Bhaskaracharya National Institute of Space Applications and Geo Informatics, Gujarat
BiSAG-N	Bhaskaracharya National Institute for Space Applications and Geoinformatics
BoP	Balance of Payments
BPCL	Bharat Petroleum Corporation Limited
BPKP	Bharatiya Prakritik Krishi Paddhati Programme
Bps	basis points

BRR	Business Responsibility Report
BRSR	Business Responsibility and Sustainability Report
BS	Bharat Stage
BSE	Bombay Stock Exchange
BSNL	Bharat Sanchar Nigam Limited
BUR	Biennial Update Reports
CAAQMS	Continuous Ambient Air Quality Monitoring Stations
CAD	Current Account Deficit
CAF	Customer Acquisition Forms
CAP	Cover and Plinth
CAPEX	Capital Expenditure
CBIC	Central Board of Indirect Taxes & Customs
CCAP	Climate Change Action Program
CCEA	Cabinet Committee on Economic Affairs
CDP	Crop Diversification Programme
CDSL	Central Depository Services Limited
CDRI	Coalition for Disaster Resilient Infrastructure
CECA	Comprehensive Economic Cooperation Agreement
CEL	Central Electronics Limited
CEPA	Comprehensive Economic Partnership Agreement
CFPI	Consumer Food Price Index
CGA	Controller General of Accounts
CGD	City Gas Distribution Network
CGF	Clean Ganga Fund
CGST	Central Goods and Service Tax
CHC	Custom Hiring Centre
CIP	Central Issue Price
CIP	Compliance Information Portal
CIS	Competitiveness Incentive Support
ckm	circuit kilometer
CNG	Compressed Natural Gas
CO2	Carbon Dioxide
CoO	Certificate of Origin
COP	Conference of the Parties
COVID 19	Coronavirus disease
CoWIN	Covid Vaccine Intelligence Work
CPHC	Comprehensive Primary Health Care
CPI-AL	Consumer Price Index-Agricultural Labourers
CPI-C	Consumer Price Index-Combined
CPI-IW	Consumer Price Index-Industrial Workers
CPI-RL	Consumer Price Index-Rural Labourers
CPO	Crude Palm Oil
CPSE	Central Public Sector Enterprise
CPSEs	Central Public Sector Enterprises
CRAR	Capital to Risk-weighted Asset Ratio

CRR	Cash Reserve Ratio
CSO	Central Statistics Office
CTDP	Comprehensive Telecom Development Plan
CTS	Craftsman Training Scheme
CU	Capacity utilization
CWC	Central Warehousing Corporation
DAC&FW	Department of Agriculture Cooperation and Farmers Welfare
DAISY	Digitally Accessible Information System
DAP	Di-ammonium Phosphate
DARE	Department of Agricultural Research and Education
DAY-NRLM	Deendayal Antyodaya Yojana – National Rural Livelihoods Mission
DBT	Direct Benefit Transfer
DBTL	Direct Benefit Transfer for LPG consumers
DCIL	Dredging Corporation of India Limited
DCP:	Decentralized Procurement
DDU- GKY	Deen Dayal Upadhyaya Grameen Kaushalya Yojana
DEPCs	District Export Promotion Committees
DFI	Development Finance Institution
DFI	Doubling Farmers' Income
DFPD	Department of Food & Public Distribution
DIPAM	Department of Investment and Public Asset Management
DMI&SP	Domestically Manufactured Iron and Steel Products
DoP	Department of Pharmaceuticals
DPCO	Drug Price Control Order
DPD	Direct Port Delivery
DPIIT	Department for Promotion of Industry and Internal Trade
DTH	Direct To Home
EBR	Extra Budgetary Resources
ECB	External Commercial Borrowings
ECBs	External Commercial Borrowings
ECCE	Early Childhood Care and Education
ECGC	Export Credit Guarantee Corporation of India Ltd.
ECLGS	Emergency Credit Line Guarantee Scheme
ECTS	Electronic Cargo Tracking System
EIC	Export Inspection Council
EMC	Electronics Manufacturing Clusters
EMDEs	Emerging Markets and Developing Economies
EME	Emerging market economies
e-NAM	Electronic National Agriculture Market
ENT	Ear, Nose and Throat
EOUs	Export Oriented Units
EPABX	Electronic Private Automatic Branch Exchange
EPCG	Export Promotion Capital Goods
EPF	Employees Provident Fund
EPFO	Employees Provident Fund Organisation

e-scrip	Electronic Scrip
ESDM	Electronics System Design and Manufacturing
ESG	Environmental, Social and Governance
ESIC	Employees' State Insurance Corporation
ETC	Electronic Toll Collection
EU	European Union
e-VIN	Electronic Vaccine Intelligence Network
EXIM Bank	Export-Import Bank of India
FAME	Faster Adoption and Manufacturing of Hybrid and Electric vehicle
FAO	Food and Agriculture Organisation
FAR	Floor area ratio
FCI	Food Corporation of India
FD	Fiscal Deficit
FDI	Foreign Direct Investment
FFS	Fund of funds for Startups
FHTC	Functional Household Tap Connection
FIDF	Fisheries and Aquaculture Infrastructure Development Fund
FIIs	Foreign Investment Inflows
FMD	Foot and Mouth Disease
FPI	Foreign Portfolio Investment
FPOs	Farmers Producers Organizations
FRL	Fiscal Responsibility Legislation
FRP	Fair and Remunerative Price
FSI	Floor Space Index
FTA	Free Trade Agreement
GB	gigabyte
GCA	Gross Cropped Area
GCF	Gross Capital Formation
GDP	Gross Domestic Product
GEC	Green Energy Corridor
GeM	Government e-Marketplace
GER	Gross Enrolment Ratio
GFR	General Financial Rules
GFCF	Gross Fixed Capital Formation
GGI –OSOWOG	Green Grids Initiative-One Sun One World One Grid
GI	Geographical Indication
GIM	National Mission for a Green India
GIS	Geographic Information System
GNPA	Gross Non Performing Assets
GP	Gram Panchayats
GPIs	Grossly Polluting Industries
GSA	Gram Swaraj Abhiyaan
GSDP	Gross State Domestic Product
G-Sec	Government Securities
GSR	General Statutory Rules

GST	Goods and Services Tax
GSTN	Goods and Services Tax Network
GSTR	Goods and Services Tax Return
GSVA	Gross State Value Added
GT	Gross tonnage
GTR	Gross Tax Revenue
GVA	Gross Value Added
GVC	Global Value Chain
GW	Ground Water / Gigawatt
HFIs	High Frequency Indicators
HFR	Health Facility Registry
HMT	Hindustan Machine Tools
HPCL	Hindustan Petroleum Corporation Limited
HPI	Housing Price Index
HPR	Healthcare Professionals Registry
HSCC	Hospital Services Consultancy Corporation Limited
HUDCO	Housing and Urban Development Corporation Limited
HYVs	High Yielding Varieties
IBC	Insolvency and Bankruptcy Code
IBP	Indo-Bangladesh Protocol
ICAR	Indian Council of Agricultural Research
ICDS	Integrated Child Development Services
ICEDASH	Indian Customs EDI Dashboard
ICETRAK	Indian Customs Enquiry for Trade Assistance and Knowledge
ICI	Index of Eight Core Industries
ICMR	Indian Council of Medical Research
ICP	Integrated Check Post
ICU	Intensive Care Unit
ICWF	Indian Community Welfare Fund
IDBI	Industrial Development Bank of India
IFS	Integrated Farming System
IFSC	Indian Financial System Code
IGGL	Indradhanush Gas Grid Limited
IHMCL	Indian Highways Management Company Limited
IIP	Index of Industrial Production
IIP	International Investment Position
IISC	India International Skill Centre
IIT	Indian Institutes of Technology
IMC	Inter-Ministerial Committee
IMF	International Monetary Fund
IMPS	Immediate Payment Service
IMR	Infant Mortality Rate
INSPACe	Indian National Space Promotion and Authorization Centre
InvIT	Infrastructure Investment trust
IPA	Indian Ports Association

IPOs	Initial Public Offering
IPR	Intellectual Property Rights
IR	Indian railways
IRCTC	Indian Railway Catering and Tourism Corporation
IRIS	Infrastructure for Resilient Island States
ISA	International Solar Alliance
IT/BPO	Information Technology/Business Process Outsourcing
ITA	International Tourist Arrivals
ITAT	Income Tax Appellate Tribunal
ITBPM	Information Technology- Business Process Management
JHBDPL	Jagdishpur-Haldia -Bokaro-Dhamra Gas Pipeline
JSS	Jan Shikshan Sansthan
KCC	Kisan Credit Card
KMS	Kharif Marketing Season
KRCL	Konkan Railway Corporation Ltd.
KSM	Key Starting Materials
KVK	Krishi Vigyan Kendra
KW	Kilowatt
KYC	Know Your Customers
LAF	Liquidity Adjustment Facility
LCS	Land Customs Stations
LDCs	Least-Developed Countries
LeadIT	Leadership Group for Industry Transition
LED	Light Emitting Diode
LF	License Fee
LFPR	Labour Force Participation Rate
LIC	Life Insurance Corporation
LIFE	Lifestyle For Environment
LMT	Lakh Metric Tonne
LMT	Lakh Metric Tonnes
LPG	Liquefied Petroleum Gas
LPG	Liquified Petroleum Gas
LSA	Licensed Service Areas
LSB	Long Span Bridges
LTEO	Long Term Ecological Observations
MAI	Market Access Initiatives
MBS	Mortgage-Backed Securities
MCF	Million-Plus Cities Challenge Fund
MCLR	Marginal Cost of Funds based Lending Rate
MDGs	Millennium Development Goals
MEIS	Merchandise Exports from India scheme
MFN	Most Favoured Nation
MGNREGA/S	Mahatma Gandhi National Rural Employment Guarantee Act / Scheme
MIDH	Mission for Integrated Development of Horticulture
MIF	Micro Irrigation Fund

MITEA	Mega Integrated Textiles region and apparel park
MIV2030	Maritime India Vision 2030
MLD	Millions of liters per day
MMF	Man Made Fiber
MMT	Million Metric Tonne
MoPNG	Ministry of Petroleum and Natural Gas
MoSPI	Ministry of Statistics and Programme Implementation
MoU	Memorandum of Understanding
MPC	Monetary Policy Committee
MPI	Multidimensional Poverty Index
MoRTH	Ministry of Road Transport and Highways of India
MRO	Maintenance, Repair and Overhaul
MRP	Maximum Retail Price
MSE-CDP	Micro Small Enterprises- Cluster Development Programme
MSMEs	Micro, Small and Medium Enterprises MSMEs
MSP	Minimum Support Price
MT	Metric Tonne
MTFP	Medium Term Fiscal Policy
MTNL	Mahanagar Telephone Nigam Limited
MTOE	Million Tonne of Oil Equivalent
MTPA	Million Tonnes Per Annum
MVA	mega volt ampere
MW	Megawatt
NABARD	National Bank for Agriculture and Rural Development
NAFCC	National Adaptation Fund on Climate Change
NAPCC	National Action Plan on Climate Change
NAPS	National Apprenticeship Promotion Scheme
NARS	National Agricultural Research System
NASSCOM	National Association of Software and Services Companies
NBB	National Bee Board
NBC	Net Borrowing Ceiling
NBE	National Board of Examination
NBHM	National Beekeeping and Honey Mission
NBS	Nutrient Based Subsidy
NCAP	National Carbonaceous Aerosols Programme
NCAP	National Clean Air Programme
NCDEX	National Commodity and Derivatives Exchange
NCERT	National Council of Educational Research and Training
NCEUS	National Commission for Enterprises in Unorganized Sector
NCIVE	National Committee for the Integration of Vocational Education
NCLT	National Company Law Tribunal
NCR	National Capital Region
NDC	Nationally Determined Contribution
NDEAR	National Digital Education Architecture
NDRF	National Disaster Response Fund

NDS OM	Negotiated Dealing System-Order Matching
NEER	Nominal Effective Exchange Rate
NEGVAC	National Expert Group on Vaccine Administration for COVID-19
NEIA	National Export Insurance Account
NEP	National Education Policy
NER	North-Eastern Region
NERAMAC	North Eastern Regional Agricultural Marketing Corporation Ltd.
NFHS	National Family Health Survey
NFSA	National Food Security Act
NFSM	National Food Security Mission
NGFS	Network for Greening the Financial System
NGO	Non-Government Organisation
NGPEs	Non-government/private entities
NH	National Highways
NHA	National Health Authority
NHB	National Housing Bank
NIF	National Indicator Framework
NIP	National Infrastructure Pipeline
NITI	National Institution for Transforming India
NLMC	National Land Monetisation Corporation
NMCG	National Mission for Clean Ganga
NMEEE	National Mission for Enhanced Energy Efficiency
NMEO-OP	National Mission on Edible Oils - Oil Palm
NMP	National Master Plan
NMP	National Monetisation Pipeline
NMP	National Monetization Plan
NMR	Neonatal Mortality Rate
NMSH	National Mission on Sustainable Habitat
NMSKCC	National Mission on Strategic Knowledge for Climate Change
NNPA	Net Non-Performing Assets
NOC	No Objection Certificate
NPCC	National Projects Construction Corporation Limited
NPCL	National Payments Corporation of India
NPE	National Policy on Electronics
NPPA	National Pharmaceutical Pricing Authority
NPS	National Pension Scheme
NPV	Net Present Value
NRI	Non-Resident Indian
NRI	Non-Resident Indian
NRM	Natural Resource Management
NRP	National Rail Plan
NSDC	National Skill Development Corporation
NSE	National Stock Exchange of India Ltd
NSIL	New Space India Limited
NSM	National Solar Mission

NSO	National Statistical Office
NSSF	National Small Savings Fund
NSSO	National Sample Survey Office
NW	National Waterway
NWM	National Water Mission
ODF	Open Defecation Free
ODL	Open Distance Learning
ODOP	One District One Product
OEA	Office of the Economic Adviser
OECD	Organisation for Economic Cooperation and Development
OFC	Optical Fiber Cable
OFS	Offer For Sale
OMSS(D)	Open Market Sale Scheme-Domestic
OMSS	Open Market Sale Scheme
ONORC	One Nation One Ration Card
OPD	Out Patient Department
OPEC+	Organization of the Petroleum Exporting Countries and its allies
OSH & WC	Occupational Safety, Health and Working Conditions
OSP	Other Services Providers
PA	Provisional Actuals
PAT	Perform Achieve and Trade
PBBY	Pravasi Bharatiya Bima Yojana
PD	Primary Deficit
PDM	Potash Derived from Molasses
PDS	Public Distribution System
PE	Provisional Estimates
PEG	Private Entrepreneurs Guarantee
PFMS	Public Finance Management System
PIB	Press Information Bureau
PIBO	Producer, Importer and Brand Owner
PIO	Person of Indian Origin
PKVY	Paramparagat Krishi Vikas Yojana
PLFS	Periodic Labour Force Survey
PLI	Production-Linked Incentive
PM CARES	Prime Minister's Citizen Assistance and Relief in Emergency Situations
PM DAKSH	Pradhan Mantri Dakshta Aur Kushalta Sampann Hitgrahi Yojana
PM POSHAN	Pradhan Mantri Poshan Shakti Nirman
PM	Particulate Matter
PM-GKRA	Pradhan Mantri Garib Kalyan Rojgar Abhiyaan
PM-ABHIM	PM-Ayushman Bharat Health Infrastructure Mission
PM-ASBY	Pradhan Mantri Atma Nirbhar Swasth Bharat Yojana
PMAY	Pradhan Mantri Awas Yojana
PMEGP	Prime Minister Employment Generation Programme
PMFBY	Pradhan Mantri Fasal Bima Yojana
PM-FME	Prime Minister-Formalisation of Micro Food Processing Enterprises

PMGKY	Pradhan Mantri Garib Kalyan Yojana
PMGSY	Pradhan Mantri Gram Sadak Yojana
PMI	Purchasing Manager's Index
PM-KISAN	Pradhan Mantri Kisan Samman Nidhi
PMKK	Pradhan Mantri Kaushal Kendras
PMKSY	Pradhan Mantri Kisan SAMPADA Yojana
PMKSY-PDMC	Pradhan Mantri Krishi Sinchayee Yojana – Per Drop More Crop
PM-KUSUM	Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan
PMKVY	Pradhan Mantri Kaushal Vikas Yojana
PMMSY	Pradhan Mantri Matsya Sampad Yojana
PMP	Phase Manufacturing Plan
PMRUs	Price Monitoring and Resource Units
PMSSY	Pradhan Mantri Swasthya Suraksha Yojana
PM-SYM	Pradhan Mantri Shram Yogi Maan-Dhan
PMUY	Pradhan Mantri Ujjwala Yojana
PNGRB	Petroleum and Natural Gas Regulatory Board
POL	Petroleum, Oil and Lubricants
PoS	Point of Sale
POSHAN	Prime Minister's Overarching Scheme for Holistic Nutrition
PPE	Personal Protective Equipment
PPP	Public Private Partnership
PPPAC	Public Private Partnership Appraisal Committee
PPPs	Public Private Partnerships
PSE	Public Sector Enterprise
POSOCO	Power System Operation Corporation Limited
PSU	Public Sector Undertaking
PTA	Preferential Trade Agreement
PTD	Price to Distributor
PV	Photovoltaic
QCBS	Quality-cum-Cost Based Selection
QCO	Quality Control Order
QE	Quantitative Easing
QRR	Quarterly Revenue Recovery
R&D	Research and Development
RBA	Reserve Bank of Australia
RBI	Reserve Bank of India
RCH	Reproductive & Child Health
RCPLWEA	Road Connectivity Project for Left Wing Extremism Affected Areas
RD	Revenue Deficit
RDG	Retail Direct Gilt
RE	Revised Estimate
REC	Rural Electrification Corporation Limited
REER	Real Effective Exchange Rate
RES	renewable energy resource
RFID	Radio Frequency Identification

RKVY	Rashtriya Krishi Vikas Yojana
RMS	Risk Management System
ROA	Return on Assets
RoC	Registrar of Companies
RoDTEP	Remission of Duties and Taxes on Exported Products
ROE	Return on Equity
RPL	Recognition of Prior Learning
RSETIs	Rural Self Employment Training Institutes
RTE	Right To Education
S&DT	Special and Differential Treatment
SACFA	Standing Advisory Committee on Radio Frequency Allocation
SAGY	Sansad Adarsh Gram Yojana
SAP	State Advised Price
SAPCC	State Action Plan on Climate Change
SAS	Situation Assessment Survey
SATS	Air India (AI) Singapore Airport Terminal Services
SAUBHAGYA	Pradhan Mantri Sahaj Bijli Har Ghar Yojana
SBSTA	Subsidiary Body for Scientific and Technological Advice
SCAMHP	Standing Committee on Affordable Medicines and Health Products
SDG	Sustainable Development Goals
SDGs	Sustainable Development Goals
SDMF	State Disaster Mitigation Fund
SDR	Special Drawing Rights
SDRF	State Disaster Response Fund
SDRMF	State Disaster Risk Management Fund
SEZ	Special Economic Zones
SFURTI	Scheme of Fund for Regeneration of Traditional Industries
SH	State-Highways
SHGs	Self Help Groups
SIAM	Society of Indian Automobile Manufacturers
SIDS	Small Island Developing States
SISFS	Startup India Seed Fund Scheme
SLDE	Secured Logistics Document Exchange
SoP	Standard Operating Procedure
SPECS	Scheme for Promotion of Manufacturing of Electronic Components and Semiconductors
SPSE	State Public Sector Enterprise
SPV	Special Purpose Vehicle
SRS	Sample Registration Based System
SSAP	State Specific Action Plan
STL	Seasonal-Trend Decomposition Procedure based on Loess
STT	Securities Transaction Tax
STT	Short Term Training
SUC	Spectrum Usage Charge
SWC	State-Warehousing Corporation
TCS	Tax Collected at Source

TDS	Tax Deducted at Source
TFR	Total Fertility Rate
THDC	Tehri Hydro Development Corporation Limited
TIES	Trade Infrastructure for Export Scheme
TLTRO	Targeted Long Term Repo Operations
TMA	Transport and Marketing Assistance
TMA	Tractor and Mechanization Association
TOP	Tomato, Onion and Potato
TPDS	Targeted Public Distribution System
TRIPS	Trade-Related Aspects of Intellectual Property Rights
TRT	Turnaround Time
TSP	Telecom Service Providers
U5MR	Under five Mortality Rate
UAN	Universal Account Number
UDISE	Unified District Information System for Education
UED	Union Excise Duties
UK	United Kingdom
UPI	Unified Payments Interface
ULB	Urban Local Bodies
UNCITRAL	United Nations Commission on International Trade Law
UNESCAP	United Nations Economic and Social Commission for Asia Pacific
UNFCCC	United Nations Framework Convention on Climate Change
UR	Udyam Registration
UR	Unemployment Rate
USA	United States of America
USD	United States Dollar
UT	Union Territory
UW	Unorganised Workers
VAP	Village Action Plan
VAT	Value Added Tax
VGF	Viability Gap Funding
VIX	Volatility Index
VRRR	Variable Rate Reverse Repo
VWSC	Village Water & Sanitation Committee
WACR	Weighted Average Call rate
WALR	Weighted Average Lending Rate
WATDR	Weighted Average Domestic Term Deposit Rate
WEO	World Economic Outlook
WHO	World Health Organisation
WPI	Wholesale Price Index
WPR	Worker Population Ratio
WSA	World Steel Association
WTO	World Trade Organization
XV-FC	Fifteenth Finance Commission
YoY	Year on Year

01

CHAPTER

State of the Economy

The last two years have been difficult for the world economy on account of the COVID-19 pandemic. Repeated waves of infection, supply-chain disruptions and, more recently, inflation have created particularly challenging times for policy-making. Faced with these challenges, the Government of India's immediate response was a bouquet of safety-nets to cushion the impact on vulnerable sections of society and the business sector. It next pushed through a significant increase in capital expenditure on infrastructure to build back medium-term demand as well as aggressively implemented supply-side measures to prepare the economy for a sustained long-term expansion. This chapter explains how this flexible and multi-layered approach is partly based on an "Agile" framework that uses feedback-loops, and the monitoring of real-time data.

Advance estimates suggest that the Indian economy is expected to witness real GDP expansion of 9.2 per cent in 2021-22 after contracting in 2020-21. This implies that overall economic activity has recovered past the pre-pandemic levels. Almost all indicators show that the economic impact of the "second wave" in Q1 was much smaller than that experienced during the full lockdown phase in 2020-21 even though the health impact was more severe.

Agriculture and allied sectors have been the least impacted by the pandemic and the sector is expected to grow by 3.9 per cent in 2021-22 after growing 3.6 per cent in the previous year. Advance estimates suggest that the GVA of Industry (including mining and construction) will rise by 11.8 per cent in 2021-22 after contracting by 7 per cent in 2020-21. The Services sector has been the hardest hit by the pandemic, especially segments that involve human contact. This sector is estimated to grow by 8.2 per cent this financial year following last year's 8.4 per cent contraction.

Total Consumption is estimated to have grown by 7.0 per cent in 2021-22 with significant contributions from government spending. Similarly, Gross Fixed Capital Formation exceeded pre-pandemic levels on the back of ramped up public expenditure on infrastructure. Exports of both goods and services have been exceptionally strong so far in 2021-22, but imports also recovered strongly with recovery in domestic demand as well as higher international commodity prices.

With the vaccination programme having covered the bulk of the population, economic momentum building back and the likely long-term benefits of supply-side reforms in the pipeline, the Indian economy is in a good position to witness GDP growth of 8.0-8.5 per cent in 2022-23.

Nonetheless, the global environment still remains uncertain. At the time of writing, a new wave in the form of the Omicron variant was sweeping across the world, inflation had jumped up in most countries, and the cycle of liquidity withdrawal was being initiated by major central banks. This is why it is especially important to look at India's macro-economic stability indicators and their ability to provide a buffer against the above stresses.

Despite all the disruptions caused by the global pandemic, India's balance of payments remained in surplus throughout the last two years. This allowed the Reserve Bank of India to keep accumulating foreign exchange reserves (they stood at US$ 634 billion on 31st December 2021). This is equivalent to 13.2 months of merchandise imports and is higher than the country's external debt. The combination of high foreign exchange reserves, sustained foreign direct investment, and rising export earnings will provide an adequate buffer against possible global liquidity tapering in 2022-23.

The fiscal support given to the economy as well as to the health response caused the fiscal deficit and government debt to rise in 2020-21. However, a strong rebound in government revenues in 2021-22 has meant that the Government will comfortably meet its targets for the year while maintaining the support, and ramping up capital expenditure. The strong revival in revenues (revenue receipts were up over 67 per cent YoY in April-November 2021) means that the Government has fiscal space to provide additional support if necessary.

The financial system is always a possible area of stress during turbulent times. However, India's capital markets, like many global markets, have done exceptionally well and have allowed record mobilization of risk capital for Indian companies. More significantly, the banking system is well capitalized and the overhang of Non-Performing Assets seem to have structurally declined even allowing for some lagged impact of the pandemic.

Vaccination is not merely a health response but is critical for opening up the economy, particularly contact-intensive services. Therefore, it should be treated for now as a macro-economic indicator. Over the course of a year, India delivered 157 crore doses that covered 91 crore people with at least one dose and 66 crore with both doses. The vaccination process for boosters and for the 15-18 year age group was also gathering pace at the time of writing.

Inflation has reappeared as a global issue in both advanced and emerging economies. India's Consumer Price Index inflation stood at 5.6 per cent YoY in December 2021 which is within the targeted tolerance band. Wholesale price inflation, however, has been running in double-digits. Although this is partly due to base effects that will even out,

India does need to be wary of imported inflation, especially from elevated global energy prices.

Overall, macro-economic stability indicators suggest that the Indian economy is well placed to take on the challenges of 2022-23. One of the reasons that the Indian economy is in a good position is its unique response strategy. Rather than pre-commit to a rigid response, Government of India opted to use safety-nets for vulnerable sections on one hand while responding iteratively based on Bayesian-updating of information. This "barbell strategy" was discussed in last year's Economic Survey. A key enabler of this flexible, iterative "Agile" approach is the use of eighty High Frequency Indicators (HFIs) in an environment of extreme uncertainty.

Another distinguishing feature of India's response has been an emphasis on supply-side reforms rather than a total reliance on demand management. These supply-side reforms include deregulation of numerous sectors, simplification of processes, removal of legacy issues like 'retrospective tax', privatisation, production-linked incentives and so on. These have been discussed in detail in the respective chapters. Even the sharp increase in capital spending by the Government can be seen both as demand and supply enhancing response as it creates infrastructure capacity for future growth. This year's Survey particularly highlights the importance of process reforms in a number of sectors while Chapter 11 provides a brief demonstration of the use of satellite images and geo-spatial data, both recently deregulated sectors, for gauging economic development.

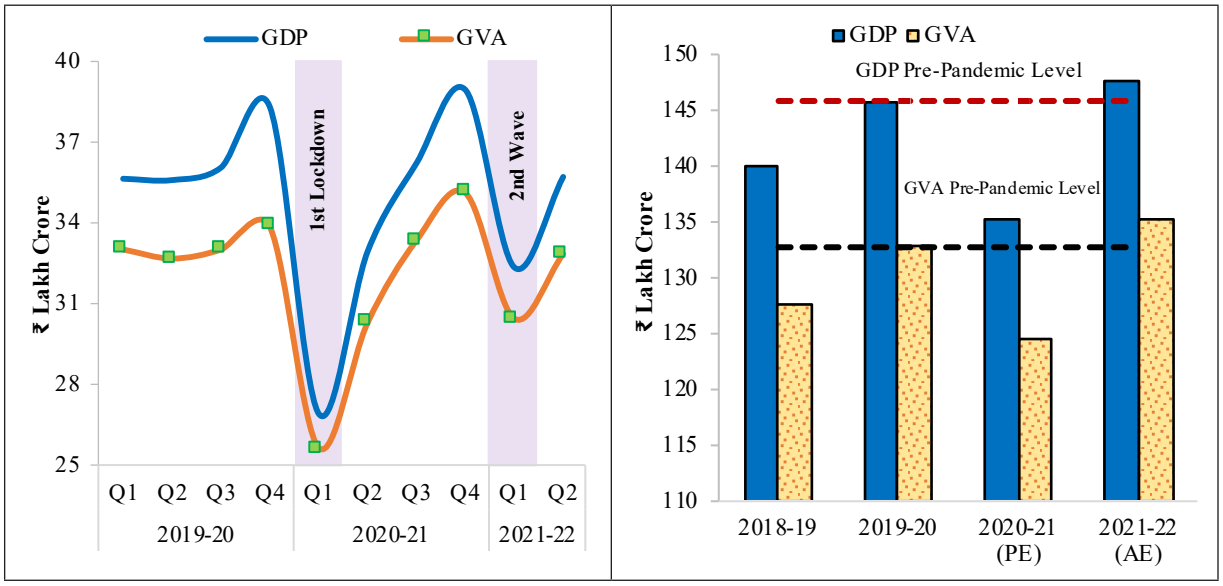
INTRODUCTION

1.1 Two years into the COVID-19 pandemic, the global economy continues to be plagued by uncertainty, with resurgent waves of mutant variants, supply-chain disruptions, and a return of inflation in both advanced and emerging economies. Moreover, the likely withdrawal of liquidity by major central banks over the next year may also make global capital flows more volatile. In this context, it is important to evaluate both the pace of growth revival in India as well as the strength of macro-economic stability indicators. It is also essential to look at progress in vaccination as this is not just a health response but also a buffer against economic disruptions caused by repeated waves of the pandemic.

Economy recovers past Pre-Pandemic levels

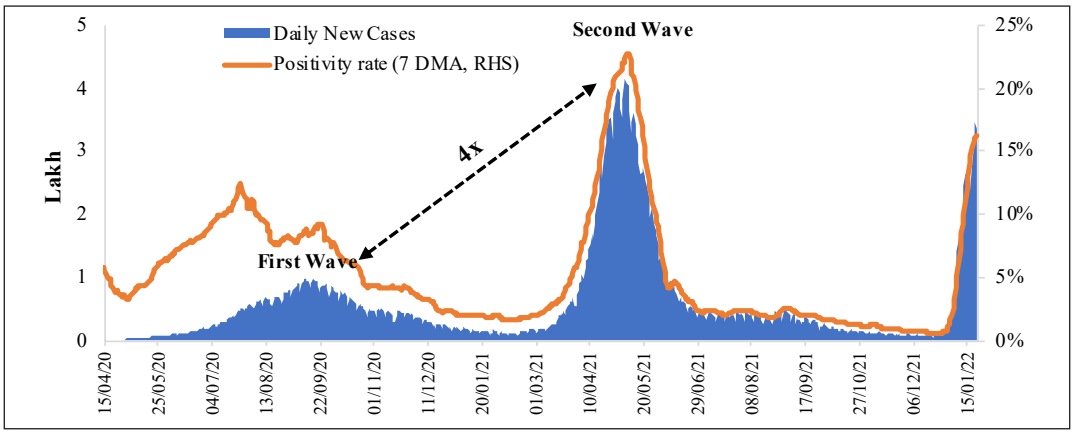
1.2 The Indian economy, as seen in quarterly estimates of GDP, has been staging a sustained recovery since the second half of 2020-21. Although the second wave of the pandemic in April-June 2021 was more severe from a health perspective, the economic impact was muted compared to the national lockdown of the previous year (see Figures 1 & 2). Advance estimates suggest that GDP will record an expansion of 9.2 per cent in 2021-22. This implies that the level of real economic output will surpass the pre-COVID level of 2019-20.

Figure 1: Gross Domestic Output (Constant Prices, Base Year:2011-12)



Source: National Accounts Statistics (NSO), MoSPI

Figure 2: Waves of COVID-19



Source: Data accessed from Ministry of Health and Family Welfare (MoH&FW)
Note: DMA stands for Daily Moving Average

SECTORAL TRENDS

1.3 Not surprisingly, the agricultural sector was the least impacted by the pandemic-related disruptions (Figure 3). It is estimated to grow 3.9 per cent in 2021-22 on top of 3.6 per cent and 4.3 per cent respectively in the previous two years (Table 1). This sector now accounts for 18.8 per cent of GVA.

Table 1: Annual Growth of GVA at constant (2011-12) prices (per cent)

Sectors	2019-20 (1st RE)	2020-21 (PE)	2021-22 (1st AE)	Recovery over 2019-20
Agriculture & Allied Sectors	**4.3**	**3.6**	**3.9**	**107.7**
Industry	**-1.2**	**-7.0**	**11.8**	**104.1**
Mining & quarrying	-2.5	-8.5	14.3	104.6

Manufacturing	-2.4	-7.2	12.5	104.4
Electricity, gas, water supply & other utility services	2.1	1.9	8.5	110.5
Construction	1.0	-8.6	10.7	101.2
Services	**7.2**	**-8.4**	**8.2**	**99.2**
Trade, hotels, transport, communication and services related to broadcasting	6.4	-18.2	11.9	91.5
Financial, real estate & professional services	7.3	-1.5	4.0	102.5
Public administration, defence and Other Services	8.3	-4.6	10.7	105.6
GVA at basic price	**4.1**	**-6.2**	**8.6**	**101.9**

Source: NSO
Note: RE - Revised Estimates, PE - Provisional Estimates, AE - Advance Estimates

1.4 As shown in Figures 5 and 6 below, the area sown under Kharif and Rabi crops, and the production of wheat and rice has been steadily increasing over the years. In line with the longer term trend, the area sown in the Kharif cycle of 2021-22 was again higher than in the previous year (the Rabi cycle data was incomplete at the time of writing). In the current year, food grains production for the Kharif season is estimated to post a record level of 150.5 million tonnes. Procurement of food grains under the central pool accordingly maintained its rising trend in 2021-22 along with minimum support prices, which augur well for national food security and farmers' incomes. Importantly, the strong performance of the sector was supported by Government policies that ensured timely supplies of seed and fertilizers despite pandemic related disruptions. It was also helped by good monsoon rains as reflected in reservoir levels being higher than the 10-year average (Figure 4).

Figure 3: Real GVA of Agriculture & Allied Sectors

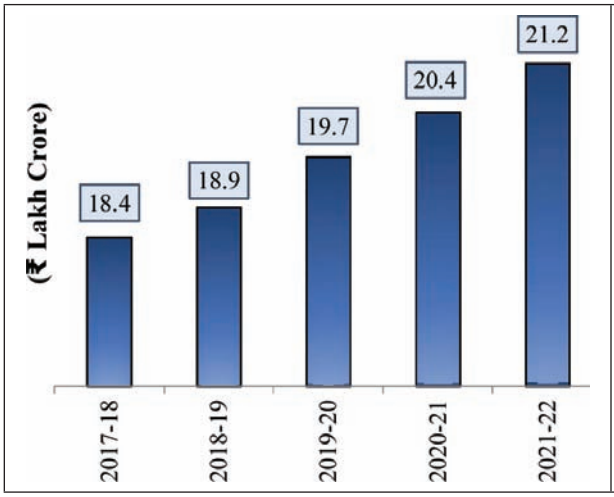
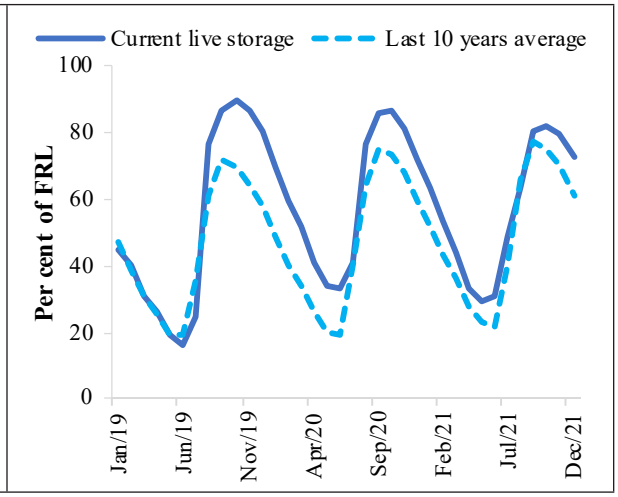


Figure 4: Reservoir Levels



Source: NSO, Central Water Commission
Note: FRL stands for Full Reservoir Level

Figure 5: Area Sown under Foodgrains

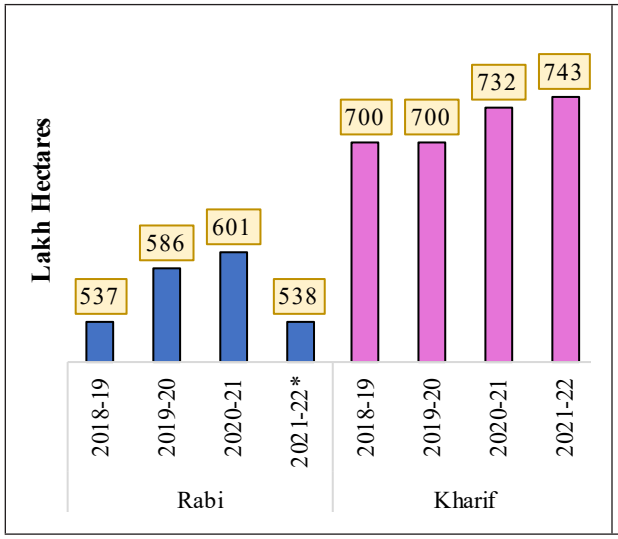
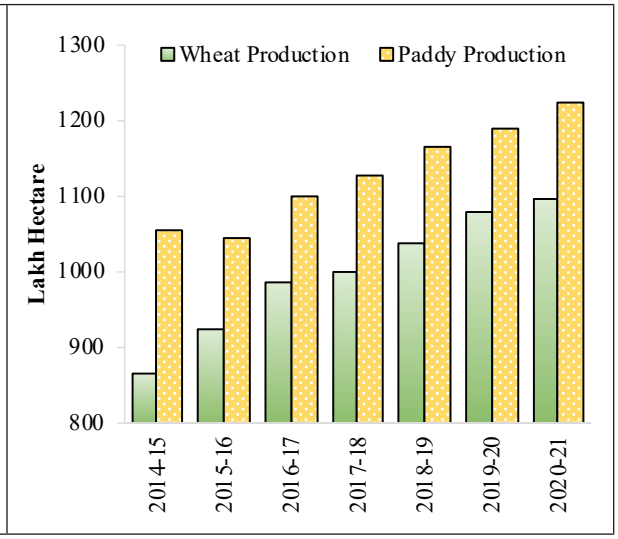


Figure 6: Production of Wheat and Rice



Source: M/o Agriculture & Farmers Welfare; *till 31st December 2021

1.5 In contrast to the steady performance of the primary sector, the industrial sector went through a big swing by first contracting by 7 per cent in 2020-21 and then expanding by 11.8 per cent in this financial year. The manufacturing, construction and mining sub-sectors went through the same swing although the utilities segment experienced a more muted cycle as basic services such as electricity and water supply were maintained even at the height of the national lockdown. The share of industry in GVA is now estimated at 28.2 per cent (Table 2).

Table 2: Share of Sectors in Nominal GVA (per cent)

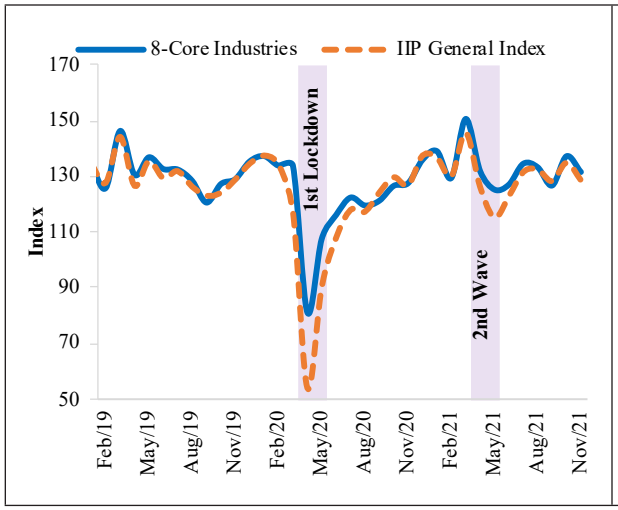
Sectors	2019-20 (1st RE)	2020-21 (PE)	2021-22 (1st AE)
Agriculture & Allied Sectors	**18.4**	**20.2**	**18.8**
Industry	**26.7**	**25.9**	**28.2**
Mining & quarrying	1.9	1.6	2.3
Manufacturing	14.7	14.4	15.4
Electricity, gas, water supply & other utility services	2.6	2.7	2.5
Construction	7.4	7.2	8.0
Services	**55.0**	**53.9**	**53.0**
Trade, hotels, transport, communication and services related to broadcasting	18.9	16.4	16.9
Financial, real estate & professional services	21.2	22.1	20.9
Public administration, defence and Other Services	14.9	15.4	15.2
GVA at basic price	**100.0**	**100.0**	**100.0**

Source: NSO

Note: RE: Revised Estimates, PE: Provisional Estimates, AE: Advance Estimates

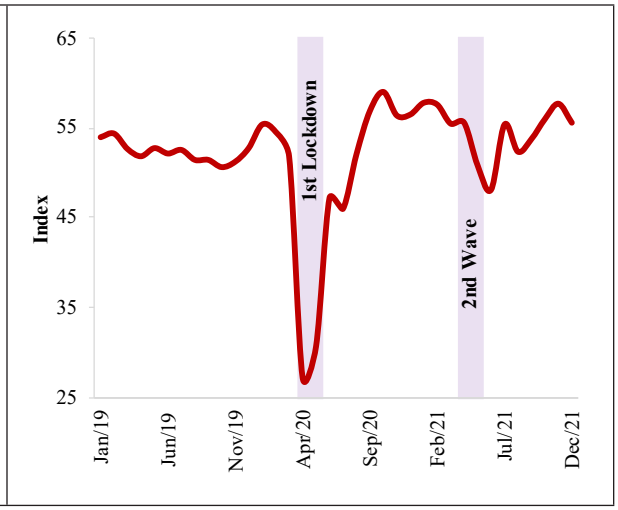
1.6 Since January 2021, the widely used Purchasing Managers' Index-Manufacturing has remained in the expansionary zone (i.e. over 50) except for one month when the second wave had slowed down economic activity (Figure 8). The Index of Industrial Production (IIP) and Core Industry indices have both followed a similar pattern and, in November 2021, went past their pre-pandemic level for the corresponding month in 2019 (Figure 7).

Figure 7: Industrial Output



Source: MoSPI, DPIIT

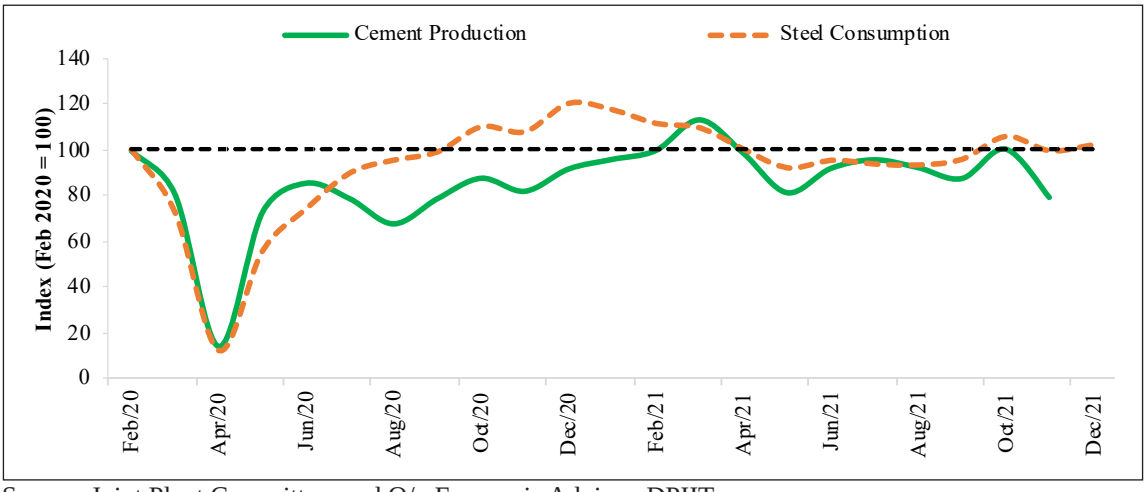
Figure 8: PMI Manufacturing



Source: IHS Markit

1.7 Rising capital expenditure by the government on infrastructure and an uptick in the housing cycle have been responsible for reviving the construction sector. This has allowed the consumption and production of steel and cement consumption to revert to pre-COVID levels (Figure 9). Statistics provided by RBI and leading real estate companies' show significant revival in the Indian residential real market in 2021 in terms of growth in sales, prices and new launches (Figure 10 and 11).

Figure 9: Construction Sector Indicators



Source: Joint Plant Committee; and O/o Economic Advisor, DPIIT

Figure 10: Housing Sales and New Launches in Top 8 Cities

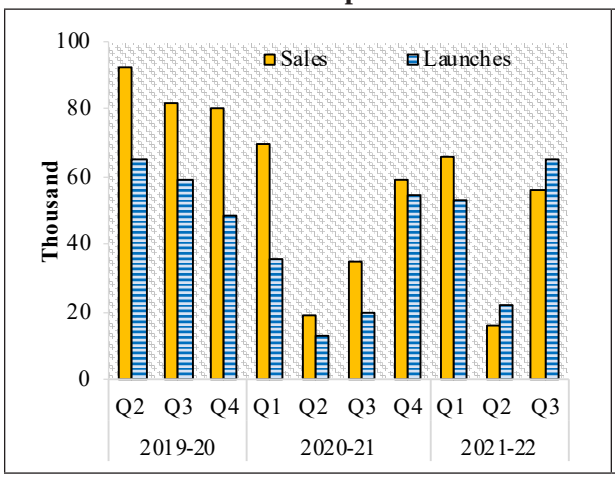
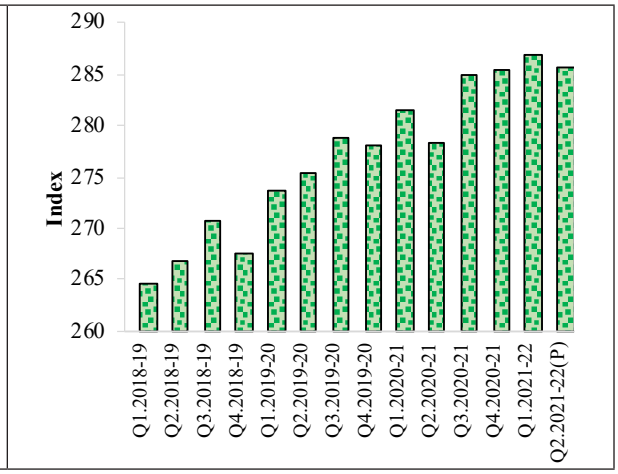


Figure 11: RBI Housing Price Index: All India

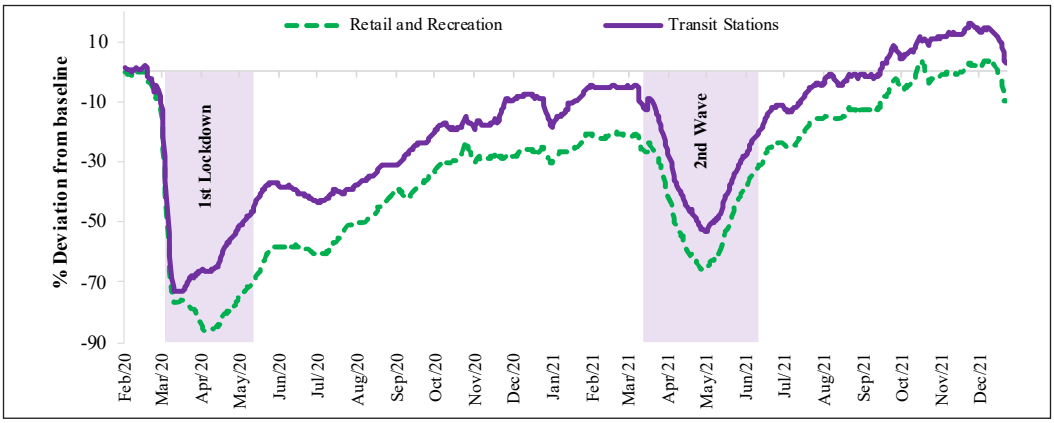


Source: Anarock, Proptiger, RBI
*Top 8 cities include: Ahmedabad, Benguluru, Chennai, Delhi NCR, Hyderabad, Kolkata, Mumbai, Pune

1.8 Services account for more than half of the Indian economy and was the most impacted by the COVID-19 related restrictions, especially for activities that need human contact. Although the overall sector first contracted by 8.4 per cent in 2020-21 and then is estimated to grow by 8.2 per cent in 2021-22, it should be noted that there is a wide dispersion of performance by different sub-sectors. Both the Finance/Real Estate and the Public Administration segments are now well above pre-COVID levels. However, segments like Travel, Trade and Hotels are yet to fully recover. It should be added that the stop-start nature of repeated pandemic waves makes it especially difficult for these sub-sectors to gather momentum.

1.9 Despite contact-sensitive services still being impacted by COVID, there has been a strong recovery of the Purchasing Managers' Index-Services since August 2021 (Figure 13). In this context, it is important to note the role of new forms of High Frequency Indicators to gauge real-time trends. For example, the Google mobility indicators for retail and recreation (i.e., restaurants, cafes, shopping centres, etc.) and transit stations (public transport hubs such as subway, bus, and train stations), measuring percentage deviation from pre-pandemic levels of mobility, has exceeded pre-pandemic levels in December 2021 before the Omicron wave again led to restrictions (Figure 12). Similarly, the hotel occupancy rate has recovered substantially, reaching 56-58 per cent in October 2021, from 30-32 per cent in April 2021 (Figure 14).

Figure 12: Trends in Mobility



Source: Google Mobility
Note: Baseline corresponds to Jan-Feb 2020 Level

Figure 13: PMI Services

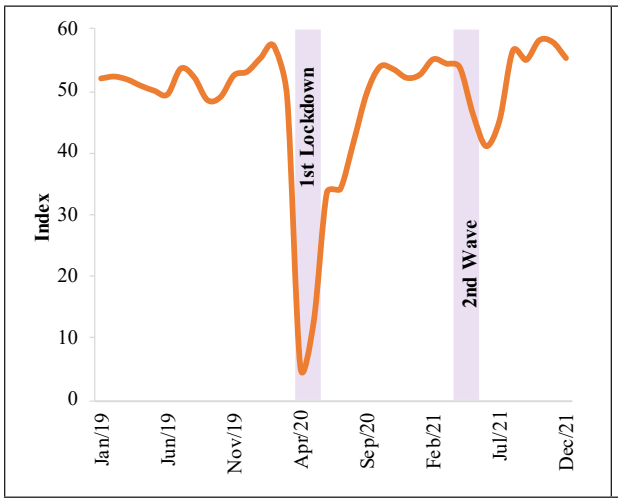
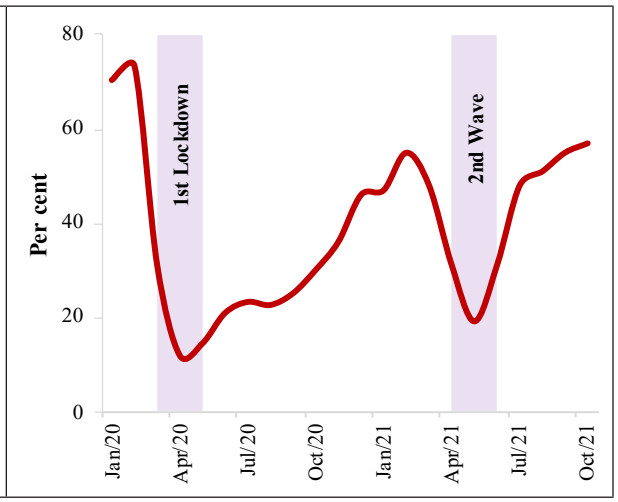


Figure 14: Hotel Occupancy Rate



Source: IHS Markit, Anarock

1.10 In contrast to contact-based services, distance-enabled services have increased their share with the growing preference for remote interfaces for office work, education and even medical services. Indeed, there has been a boom in software and IT-enabled services exports even as earnings from tourism have declined sharply (see Figures 15 & 16).

Figure 15: Quarterly Trend in Services Exports

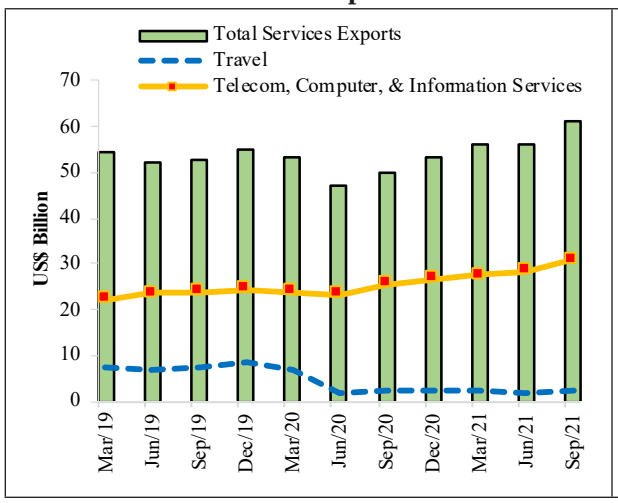
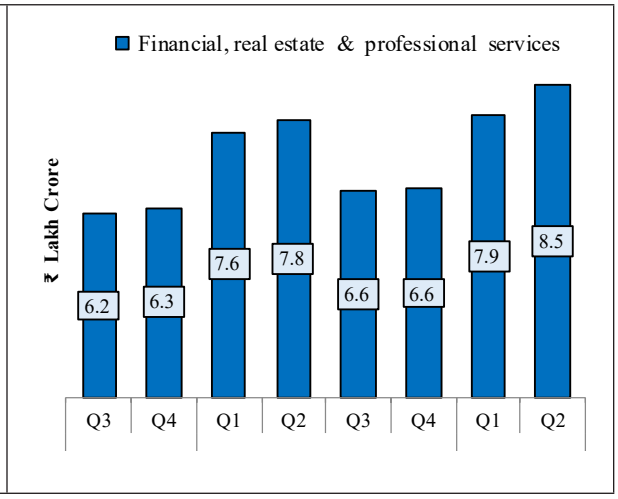


Figure 16: Real GVA of Distance Enabled services



Source: RBI, NSO

DEMAND TRENDS

1.11 Latest advance estimates suggest full recovery of all components on the demand side in 2021-22 except for private consumption. When compared to pre-pandemic levels, recovery is most significant in exports followed by government consumption and gross fixed capital formation. However, an equally strong recovery was seen in imports (Table 3 and Table 4).

Table 3: Annual Real growth in demand side of GDP and its components (per cent)

Components	2019-20 (1st RE)	2020-21 (PE)	2021-22 (1st AE)	Recovery over 2019-20
Total Consumption	5.9	-7.3	7.0	99.2
Government Consumption	7.9	2.9	7.6	110.7
Private Consumption	5.5	-9.1	6.9	97.1
Gross Fixed Capital Formation	5.4	-10.8	15.0	102.6
Exports	-3.3	-4.7	16.5	111.1
Imports	-0.8	-13.6	29.4	111.8
GDP	**4.0**	**-7.3**	**9.2**	**101.3**

Source: NSO
Note: RE - Revised Estimates, PE - Provisional Estimates, AE - Advance Estimates

Table 4: Share of Sectors in Nominal GDP (per cent)

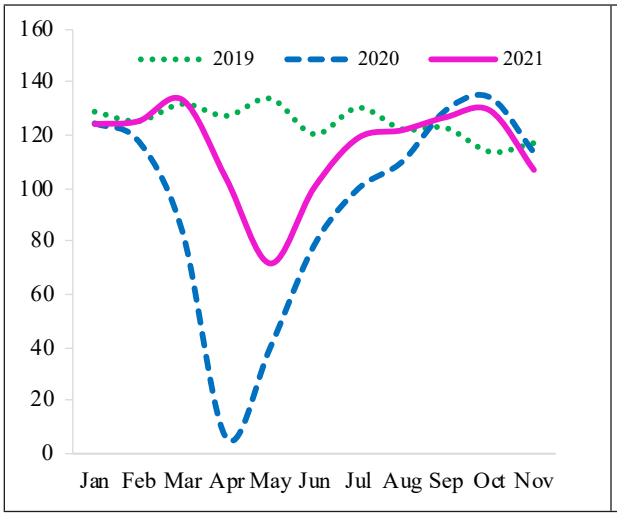
Sectors	2019-20 (1st RE)	2020-21 (PE)	2021-22 (1st AE)
Total Consumption	71.7	71.1	69.7
Government Consumption	11.2	12.5	12.2
Private Consumption	60.5	58.6	57.5
Gross Fixed Capital Formation	28.8	27.1	29.6
Net Export	-2.5	-0.5	-3.0
Exports	18.4	18.7	20.1
Imports	21.0	19.2	23.1
GDP	**100.0**	**100.0**	**100.0**

Source: NSO
Note: RE: Revised Estimates, PE: Provisional Estimates, AE: Advance Estimates

Consumption

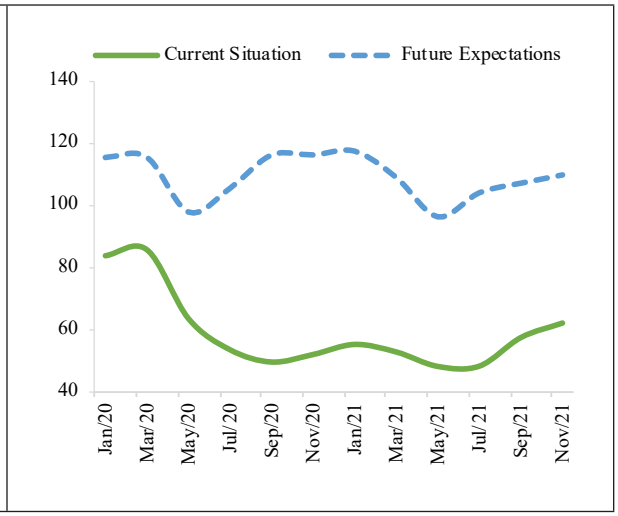
1.12 Total consumption is estimated to have grown by 7.0 per cent in 2021-22 with government consumption remaining the biggest contributor as in the previous year (Table 3). Government consumption is estimated to grow by a strong 7.6 per cent surpassing pre-pandemic levels. Private consumption is also estimated to have improved significantly to recover 97 per cent of corresponding pre-pandemic output level. This is supported by a sharp rebound in HFIs like IIP Consumer Durables (Figure 17). However, the recent dip in vehicle registrations reflects persistent supply-side constraints owing to the shortage of semi-conductor chips rather than lack of consumption demand. This is illustrated in Box 2 on global supply-side disruptions. Further, RBI's consumer confidence survey results on both the present situation and future expectations suggest sustained uptick in consumer sentiments (Figure 18). Also indicative of uptick in consumer sentiments is the steep rise in digital transactions, notably in UPI payments owing to the pandemic induced shift to contactless payments. Private consumption is poised to see stronger recovery with rapid coverage in vaccination and faster normalisation of economic activity.

Figure 17: IIP Consumer Durables Index



Source: O/o Economic Advisor, DPIIT

Figure 18: RBI's Consumer Confidence Index

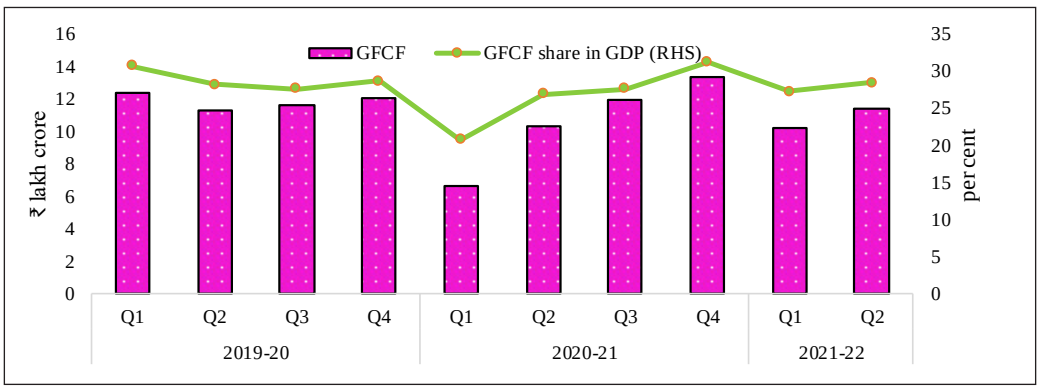


Source: RBI

Investment

1.13 Investment, as measured by Gross Fixed Capital Formation (GFCF) is expected to see strong growth of 15 per cent in 2021-22 and achieve full recovery of pre-pandemic level. Government's policy thrust on quickening virtuous cycle of growth via capex and infrastructure spending has increased capital formation in the economy lifting the investment to GDP ratio to about 29.6 per cent in 2021-22, the highest in seven years (Figure 19).

Figure 19: Gross Fixed Capital Formation (GFCF)



Source: NSO, MoSPI
Note: Absolute figures at constant (2011-12) prices, shares as per current prices

1.14 While private investment recovery is still at a nascent stage, there are many signals which indicate that India is poised for stronger investment. The number of private investment projects under implementation in manufacturing sector has been rising over the years (Figure 20). Companies hitting record profits in recent quarters and mobilization of risk capital bode well for acceleration in private investment (Figure 21). A sturdy and cleaned-up banking sector stands ready to support private investment adequately. Expected increase in private consumption levels will propel capacity utilisation, thereby fuelling private investment activity. RBI's latest Industrial Outlook Survey results indicate rising optimism of investors and expansion in production in the upcoming quarters.

Figure 20: Investor Sentiment in Manufacturing

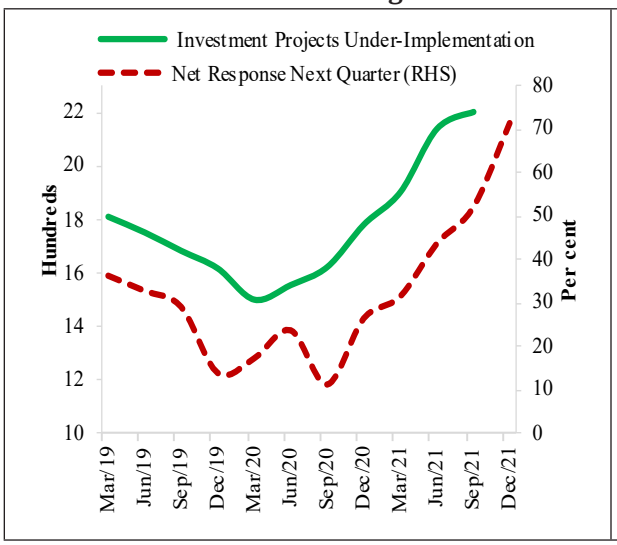
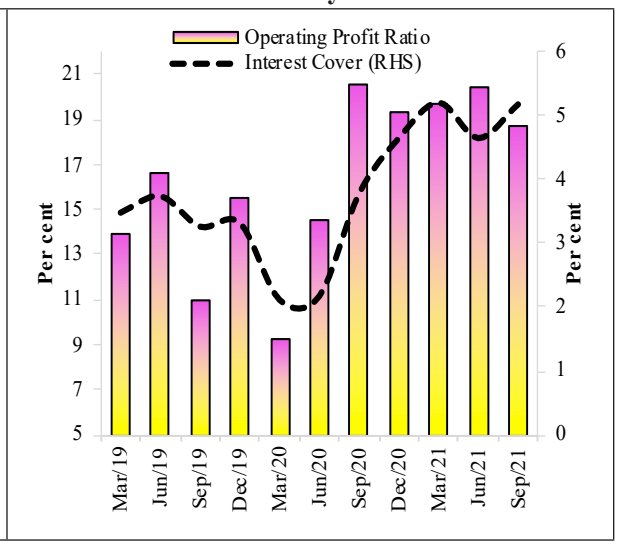


Figure 21: Non-Financial Sector Profitability Ratios



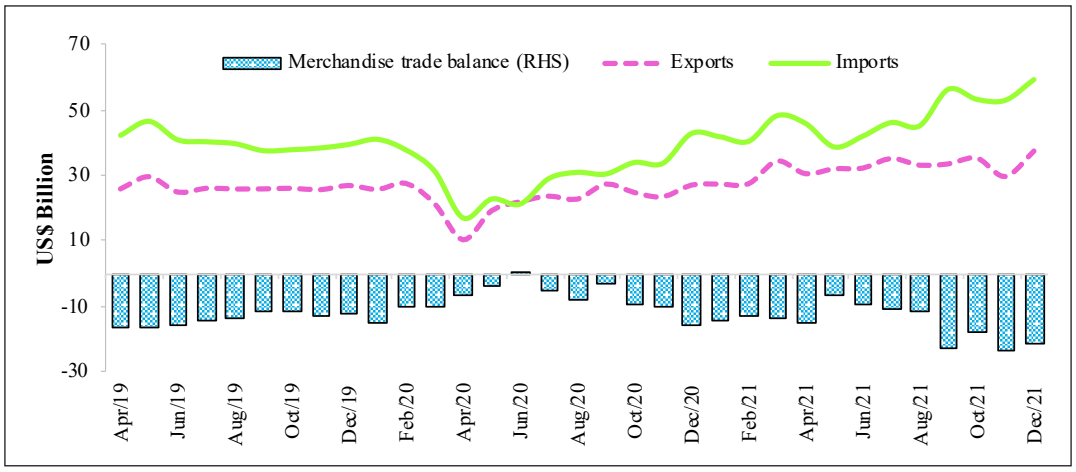
Source: CMIE Capex Database, RBI Industrial Outlook Survey, Prowess Database

Exports and Imports

1.15 India's exports of both goods and services have been exceptionally strong so far in 2021-22. Merchandise exports have been above US$ 30 billion for eight consecutive months in 2021-22, despite a rise in trade costs arising from global supply constraints such as fewer operational shipping vessels, exogenous events such as blockage of Suez Canal and COVID-19 outbreak in port city of China etc. (Figure 22). Concurrently, net services exports have also risen sharply, driven by professional and management consulting services, audio visual and related services, freight transport services, telecommunications, computer and information services (Figure 23). From a demand perspective, India's total exports are expected to grow by 16.5 per cent in 2021-22 surpassing pre-pandemic levels. Imports also recovered strongly with revival of domestic demand and continuous rise in price of imported crude and metals. Imports are expected to grow by 29.4 per cent in 2021-22 surpassing corresponding pre-pandemic levels.

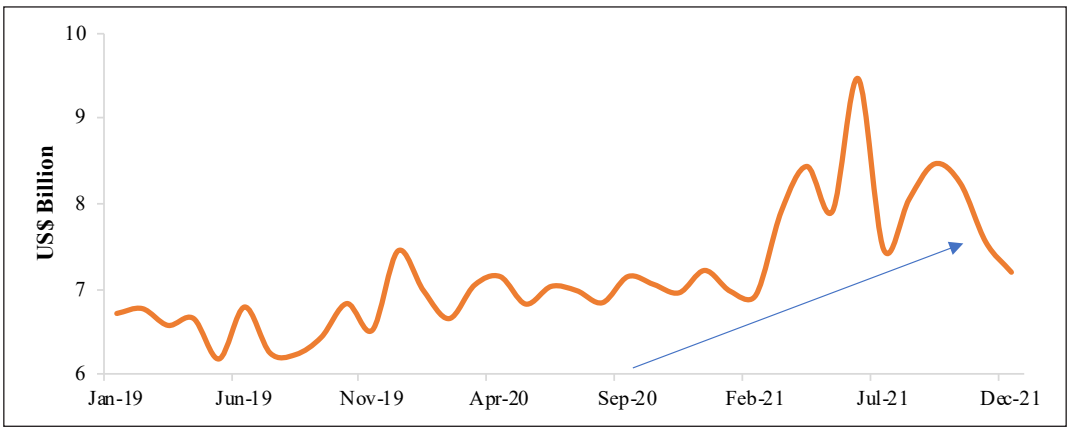
1.16 Resultantly, India's net exports have turned negative in the first half of 2021-22, compared to a surplus in the corresponding period of 2020-21 with current account recording a modest deficit of 0.2 per cent of GDP in the first half (Figure 24). However, robust capital flows in the form of continued inflow of foreign investment were sufficient to finance the modest current account deficit. Elevated global commodity prices, revival in real economic activity driving higher domestic demand and growing uncertainty surrounding capital inflows may widen current account deficit further during the second half of the year. However, it is expected to be within manageable limits.

Figure 22: Merchandise Trade



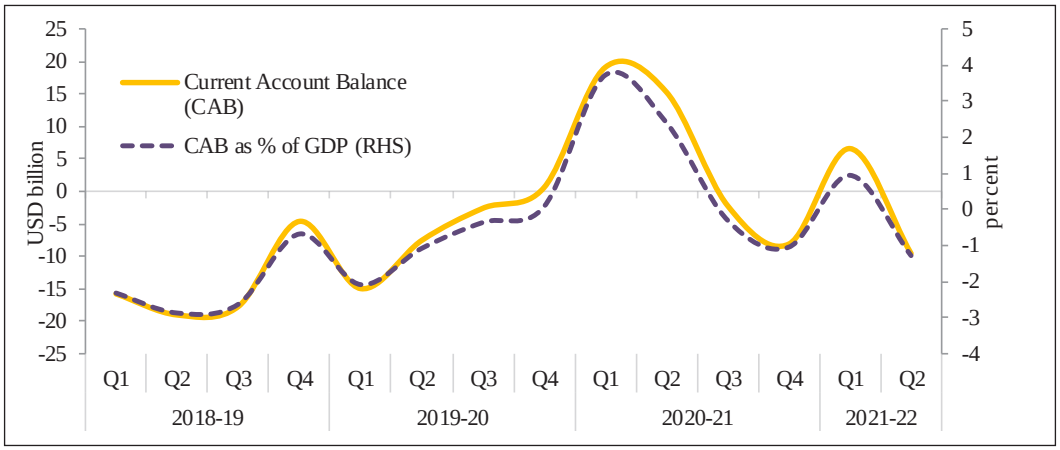
Source: M/o Commerce and Industry

Figure 23: India's International Trade in Services, Net



Source: RBI

Figure 24: India's Current Account Balance



Source: RBI

BARBELL STRATEGY, SAFTEY NETS & AGILE RESPONSE

1.17 The last two years have been particularly challenging for policy-making around the world with repeated waves from a mutating virus, travel restrictions, supply-chain disruptions and, more recently, global inflation. Faced with all this uncertainty, the Government of India opted for a "Barbell Strategy" that combined a bouquet of safety-nets to cushion the impact on vulnerable sections of society/business, with a flexible policy response based on a Bayesian updating of information. As explained in last year's Economic Survey, this is a common strategy used in financial markets to deal with extreme uncertainty by combining two seemingly disparate legs. As some readers will have guessed, the iterative leg of this strategy is the same as the "Agile" approach that uses feedback-loops, and real-time adjustment.

1.18 The Agile approach is a well-established intellectual framework that is increasingly used in fields like project management and technology development. In an uncertain environment, the Agile framework responds by assessing outcomes in short iterations and constantly adjusting incrementally. It is important here to distinguish Agile from the "Waterfall" framework which has been the conventional method for framing policy in India and most of the world. The Waterfall approach entails a detailed, initial assessment of the problem followed by a rigid up-front plan for implementation. This methodology works on the premise that all requirements can be understood at the beginning and therefore pre-commits to a certain path of action. This is the thinking reflected in five-year economic plans, and rigid urban master-plans.

1.19 While some form of feedback-loop based policy-making was always possible, it is particularly effective at a time when we have wealth of real-time data. Over the last two years, Government leveraged a host of High Frequency Indicators (HFIs) both from government departments/agencies as well as private institutions that enabled constant monitoring and iterative adaptations. Such information includes GST collections, power consumption, mobility indicators, digital payments, satellite photographs, cargo movements, highway toll collections, and so on. These HFIs helped policy makers tailor their responses to an evolving situation rather than rely on pre-defined responses of a Waterfall framework.

1.20 Notice that the flexibility of Agile improves responsiveness and aids evolution, but it does not attempt to predict future outcomes. This is why the other leg of the Barbell strategy is also needed. It cushions for unpredictable negative outcomes by providing safety nets. This explains why the Government's initial measures in 2020-21 were mostly about making food available to the poor, providing emergency liquidity support for MSMEs and holding the Insolvency and Bankruptcy Code in abeyance. Once these were in place, the Government made its way forward by regularly announcing packages targeted at specific challenges. Contrast this with the approach adopted by many other countries pre-committing to a particular response path. The following discussion provides an overview of the safety-net measures used to cushion the economy, while Chapter 2 provides a detailed analysis of how the fiscal mix changed over time towards supporting demand through capital expenditure and the supply-side through measures like production linked incentives. In line with Agile approach, this mix can be changed again as per the requirements of an evolving situation.

Safety Nets used to Cushion Vulnerable Sections

1.21 The recognition of extreme uncertainty associated with a 'once-in-a-century' pandemic meant that the Government opted for a careful mix of emergency support and economic policy

actions to provide a cushion against pandemic induced shocks while flexibly adapting to an evolving situation.

1.22 In early 2020, when the first wave of the pandemic was making its way around the world, the Government focused on saving lives through emergency policy actions. The first among these actions was the imposition of a stringent lockdown in March 2020 when cases were still few. This provided the necessary time to ramp up testing infrastructure, create quarantine facilities and so on. Most importantly, it gave time to understand the COVID-19 virus, its symptoms and how it spread.

1.23 The government recognised that lockdowns and quarantines disrupt economic activity. Therefore, it quickly put in place economic safety nets comprised of world's largest free food program, direct cash transfers and relief measures for small businesses (details in Table 5). The Reserve Bank of India simultaneously provided monetary support to the economy. Many of these safety net provisions continued during the second wave and have been extended further as appropriate. This was combined with a rapid ramp-up of the vaccination programme as discussed later in the chapter.

Table 5: Key Safety Net Measures to Prevent Distress during COVID-19

Cash Transfers	₹500/month for 3 months to women Jan Dhan Account holders	• ₹30,944 crore released to 20.64 crore women beneficiaries
	₹1000 to vulnerable sections (widows, Divyangs, elderly)	• ₹2814 crore released covering 2.82 crore beneficiaries
	Pradhan Mantri Kisan Samman Nidhi (PM-KISAN)- ₹6000/- per year in three instalments	• ₹ 1.8 lakh crore transferred to more than 10 crore farmer families as on 1.1.2022, since Feb 2019, i.e., 6 instalments since COVID-19
Food Security	**Pradhan Mantri Garib Kalyan Anna Yojana** - Additional free-of-cost food grains to 80 Crore National Food Security Act (NFSA) beneficiaries @ 5 Kg per person per month, over and above the regular monthly NFSA foodgrains	• Launched in March 2020, extended till March 2022 under Phase-V • From Mar-2020 to Nov-2021, 600 LMT foodgrains allocated to States/ UTs equivalent to ₹ 2.07 Lakh Crore in food subsidy
	One Nation One Ration Card to ensure PDS benefit for people in transit, especially migrant workers.	• Enabled in 34 States/UTs by August 2021 covering 94.3 per cent National Food Security Act population • 24.32 crore portability transactions carried out between 1.4.2020 and 30.9.2021
	Cooking gas cylinders under **Ujjawala**	• 3 free cylinders to 8 crore beneficiaries for April to June 2020. • First refill and hotplate free under Ujjwala 2.0 (launched 10.8.2021) with simpler procedures

Employment	**Pradhan Mantri Garib Kalyan Rojgar Abhiyaan** (PM-GKRA) for immediate employment & livelihood opportunities to returnee migrant workers across 6 States of Bihar, Jharkhand, Madhya Pradesh, Odisha, Rajasthan and Uttar Pradesh	• Generated 50.8 crore man-days employment as on 27.07.21 with expenditure of ₹ 39,293 crore
	Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS)	• 2020-21 employment provided to 11.2 crore persons generating 389.2 crore person days. Funds of ₹1,11,171 crore released • 2021-22 (as on 25.11.2021): employment provided to 8.85 crore persons generating 240.4 crore person days. Funds of ₹ 68,233 crore released.
	MGNREGS wage increased by ₹20 over the wage rate of 2019-20	• Wage rate revised w.e.f. 1.4.2020 to benefit nearly 13.62 crore families
	Contribution of 12 per cent employer and 12 per cent employee's share under **Employees Provident Fund** (EPF) for 6 months for establishments with upto 100 employees with 90 per cent earning less than ₹ 15000/-	• Protected employment in EPFO registered establishments post-COVID
	Aatmanirbhar Bharat Rojgar Yojana (ABRY) to reduce the financial burden of the employers and encourages them to hire more workers, implemented by EPFO	• As on 20.11.2021, benefit provided to 39.43 lakh beneficiaries through 1.15 lakh establishments
Housing	**Pradhan Mantri Awas Yojana – Gramin** (PMAY-G)	• 2020- 21: 33.99 lakh houses completed • 2021-22 (as on 25.11.21): 26.20 lakh houses completed
	Pradhan Mantri Awas Yojana – Urban (PMAY-U)	• 2020-21: 14.56 lakh houses completed • 2021-22: 4.49 lakh houses completed (upto Dec-21)
Skill Development	**Deen Dayal Upadhyaya Grameen Kaushalya Yojana** (DDU-GKY) and Rural Self Employment Training Institutes (RSETIs) - skill development programmes for rural poor youth	DDU-GKY • 2020-21: 38,289 candidates trained and 49,563 candidates placed in jobs • 2021-22 (till Oct'21): 14,568 candidates trained and 21,369 candidates placed in jobs RSETI • 2020-21: 207712 candidates trained and 138537 candidates settled

		• 2021-22 (as on 30.10.2021): 114640 candidates trained and 61546 candidates settled
	Fresh skilling and upskilling of the returnee migrant workers under Pradhan Mantri Kaushal Vikas Yojana (PMKVY) covering 6 states	• 1.24 lakh migrant workers trained as on 21.11.2021
MSMEs	6-month moratorium and deferment of interest for 1.3.2020 to 31.8.2020 for all term loans by RBI	• Availed by 77.2 per cent of MSME borrowers and 43.7 per cent of individual borrowers of SCBs, as on 31.08.2020
	Restructuring of MSME default loans – Aug 2020 and May 2021 Schemes of RBI	• Aggregate restructured portfolio of ₹78,591 crore as on 12.11.2021 by SCBs • Resolution/restructuring by PSBs in 9.8 lakh MSME accounts amounting to ₹58,524 crore
	Emergency Credit Line Guarantee Scheme – 100 per cent guarantee for additional funding of up to ₹ 4.5 lakh crore to businesses (esp. MSMEs) for COVID affected sectors	• ₹ 2.28 lakh crore disbursed to 95.2 lakh borrowers, impacting 5.45 crore employees as on 19.11.2021 • 66 per cent of guarantee amount disbursed to MSMEs • Extended till 31.03.2022
	Credit Guarantee Scheme (CGS) for MSMEs	Credit / Margin Money provided • 2020-21: ₹ 36,899 crore • 2021-22: ₹22,959 crore (as on 30.11.2021)
Credit	Suspension of initiation of corporate insolvency process under Insolvency and Bankruptcy Code for 1 year, and increasing minimum threshold from ₹ 1 lakh to 1 crore	• Defaults during 25.3.2020 to 24.3.2021 remained as *non-est*
	Term Liquidity Facility of ₹50,000 crore for Emergency Health Services by RBI up to 31.3.2022	• Announced on 31.04.2021
	Credit Guarantee Scheme to Micro Finance Institutions (MFIs) for on-lending	• Fully utilized in 75 days of launch (28.6.2021), ₹ 7500 crore sanctioned
	₹ 45,000 crore Partial Credit Guarantee Scheme 2.0 for NBFCs, HFCs and MFIs for fresh lending to MSMEs & individuals	• As on 25.9.2020, portfolio of ₹ 25,505 crore approved by banks. • PSBs: portfolio of ₹27,794 crore purchased as on 4.12.2020

	Special Long Term Repo Operations for Small Finance Banks available till 31.10.2021	• Announced on 31.04.2021
Credit ₹	Lending by Small Finance Banks (SFBs) to MFIs for on-lending to be classified as priority sector lending up to 31.3.2022	• Announced on 31.04.2021
	₹30,000 crore Additional Emergency Working Capital Funding for farmers through NABARD	• ₹25,000 crore disbursed as on 25.9.2020 • Balance ₹5,000 crore allocated to NABARD by RBI for smaller NBFCs and NBFC-MFIs.
	Nationwide Credit Outreach Programme launched on 16.10.2021	• ₹ 96,063 crore loans sanctioned as on 26.11.2021
	Kisan Credit Cards Special Drive- ₹2 lakh crore Concessional credit boost to 2.5 crore farmers	• More than 1.5 crore KCCs issued with credit limit of ₹1.35 lakh crore
	PM SVANidhi Scheme to provide working capital loan to urban street vendors to resume their businesses	• Credit worth ₹3,054 crore to 30.2 lakh street vendors as on 30.11.2021
	Self-Help groups (SHGs)	• Collateral free lending limit increased from ₹10 lakhs to ₹20 lakhs for 63 lakh women SHGs, who supported 6.85 crore households.
	Deendayal Antyodaya Yojana - National Rural Livelihoods Mission (DAY-NRLM) to reduce poverty by organizing the rural poor women into Self Help Groups (SHGs)	• 2020-21: loans worth ₹ 84,143 crores disbursed to SHGs. • 2021-22 (till September 2021): 21.6 lakh SHGs credit linked with ₹ 43093 crores.
	₹ 30,000 crore Special Liquidity Scheme for NBFCs/HFCs/MFIs	• As on 30.9.2020, 39 proposals approved involving ₹11,120 crore - ₹7,227 crore disbursed. Scheme closed.
	₹1.1 lakh crore loan guarantee scheme for COVID affected sectors – health infrastructure, tourism, etc.	• Cabinet approval on 30.06.2021 • Applicable till 31.03.2022, or till ₹50,000 crore is sanctioned, whichever is earlier

Source: Various PIB releases and Parliament questions

Monetary and Financial Support

1.24 Monetary policy since the outbreak of the pandemic was calibrated to provide a cushion and support growth, but carefully controlled in order to avoid the medium term dislocations of excess liquidity. The Monetary Policy Committee (MPC) cut the policy repo rate by 115 basis points (bps) during February to May 2020, on top of a reduction of 135 bps in the preceding twelve months. Since then, the MPC has maintained status quo on the policy repo rate keeping it unchanged at 4 per cent. The Marginal Standing Facility rate and the bank rate have also remained unchanged at 4.25 per cent and so has the reverse repo rate at 3.35 per cent. RBI in its latest MPC statement has further decided to continue with this accommodative stance as long as necessary to revive growth on a durable basis. A number of additional steps were taken throughout the period to ensure that there was adequate liquidity in the system to allow the central and state governments to finance themselves at lower rates.

1.25 An important aspect of the safety-net was the use of Government guarantees to provide access to financial support to the economy in general and MSMEs in particular (see Table 5). Combined with a moratorium on insolvency proceedings, the Government was able to avoid a payments logjam that could have caused a cascade of defaults. Much of the support was extended into 2021-22 where needed, but RBI and the Government have allowed some of liquidity support to roll-off and the insolvency process to resume as the economy has recovered. It is important to do this as excess liquidity and a stalled insolvency process bring longer-term risks. This is discussed in detail in Chapter 4.

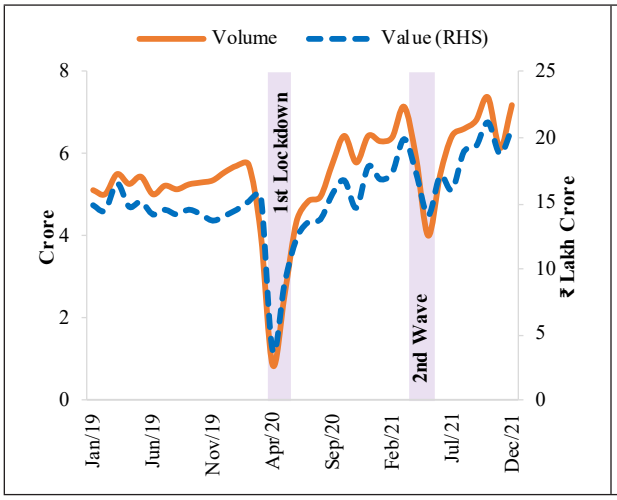
High Frequency Indicators

1.26 As mentioned above, in the last two years, Government leveraged an array of eighty HFIs representing industry, services, global trends, macro-stability indicators and several other activities, from both public and private sources to gauge the underlying state of the economy on a real-time basis. These include electricity generation, scheduled domestic flights, volume/value of financial transactions, capital flows, mobility indices, and so on. It also covers employment demanded under MGNREGA to gauge rural employment conditions, especially in the context of migrant workers. These indicators are regularly published in the Monthly Economic Report of Ministry of Finance and a full list is given in the Annex at the end of this chapter.

1.27 While HFIs have the advantage of being real-time and frequent, they need to be used with care. Each indicator provides, at best, a partial view of developments. Moreover, the noise-to-signal ratio can be higher than for national accounts and other slower moving data. In a rapidly evolving situation, policy-makers can pick up useful signals that allow for faster response and better targeting. Thus, using HFIs for gauging trends in the economy is as much an art as a science. The following charts provide a flavour of the HFIs being used (Figure 25). The specific interpretations and policy response are discussed in the relevant chapters.

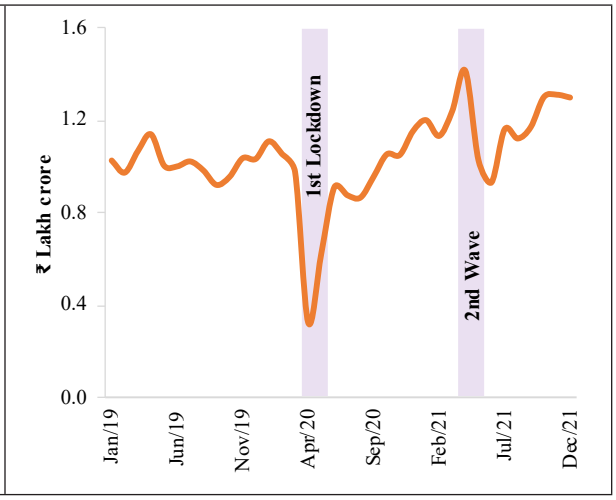
Figure 25: Performance of High Frequency Indicators

a. E-way Bill Generation



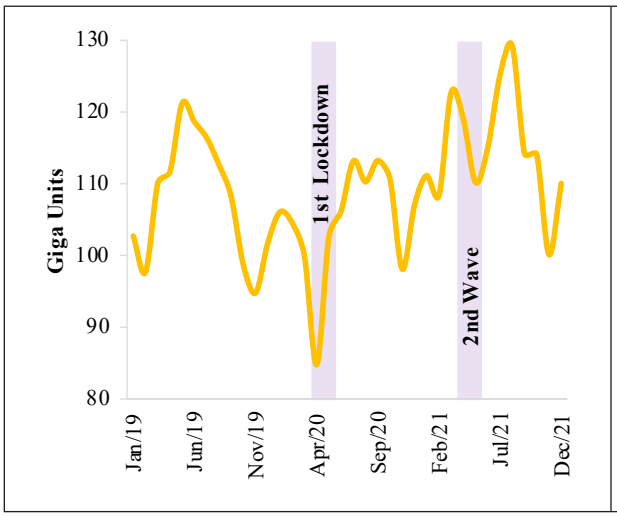
Source: GSTN

b. GST Collection



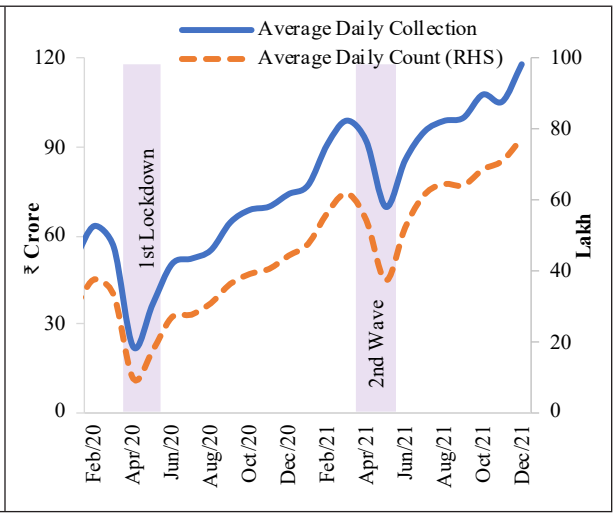
Source: Ministry of Finance

c. Power Consumption



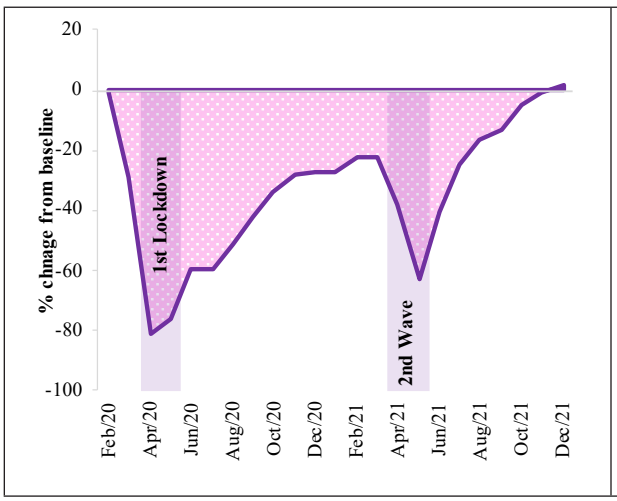
Source: POSOCO

d. Electronic Toll Collection and Count



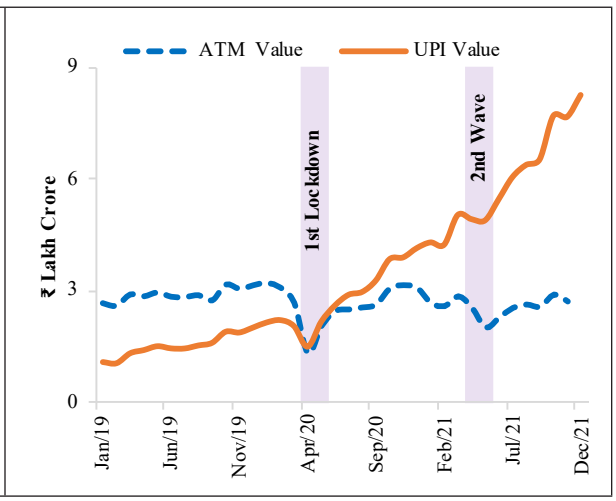
Source: IHMCL, MoRTH

e. Retail Mobility



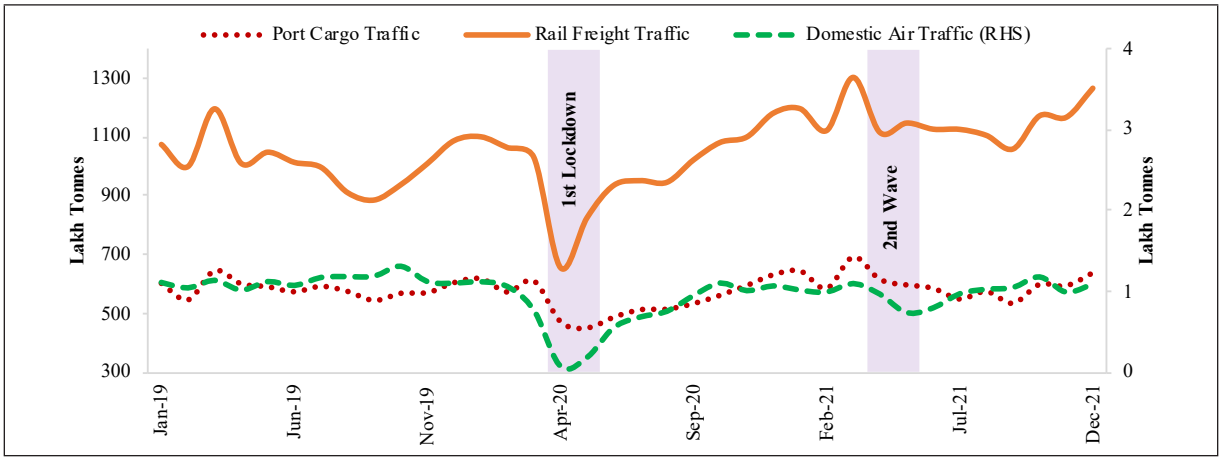
Source: Google Mobility

f. UPI and ATM Transactions



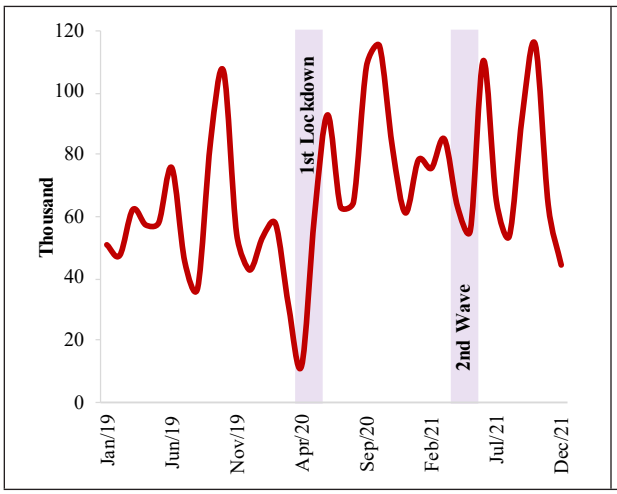
Source: NPCI, RBI

g. Freight and Cargo Traffic



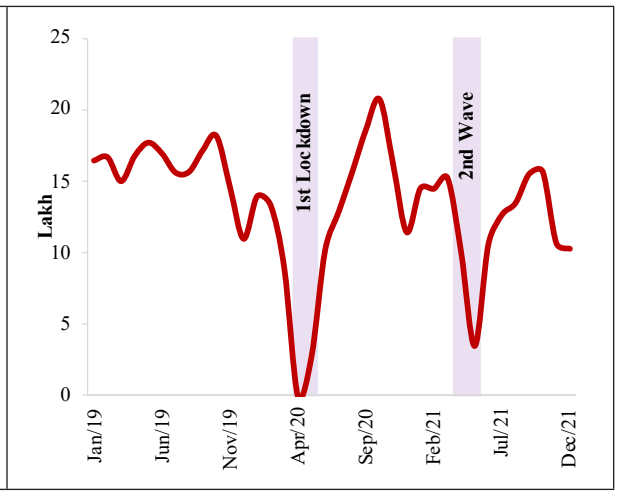
Source: IPA, AAI, Ministry of Railways

h. Domestic Tractor Sales



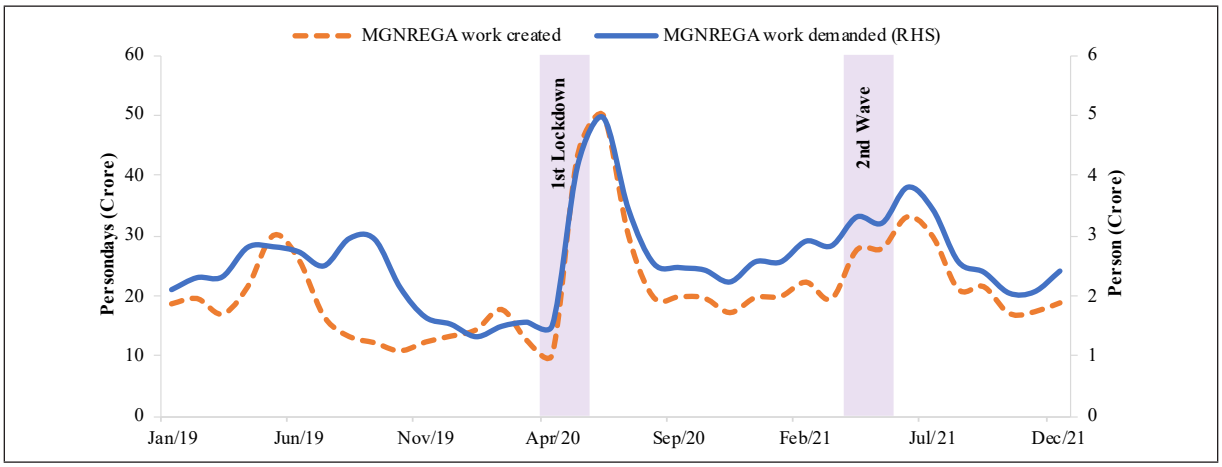
Source: TMA

i. Two and Three Vehicle Sales



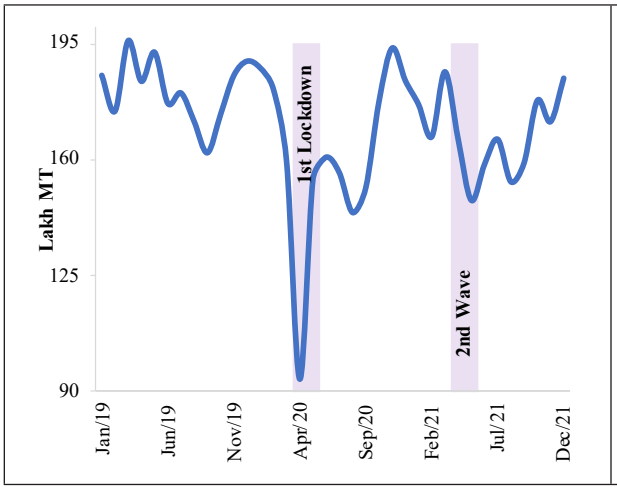
Source: SIAM

j. MNREGA work generated and demanded



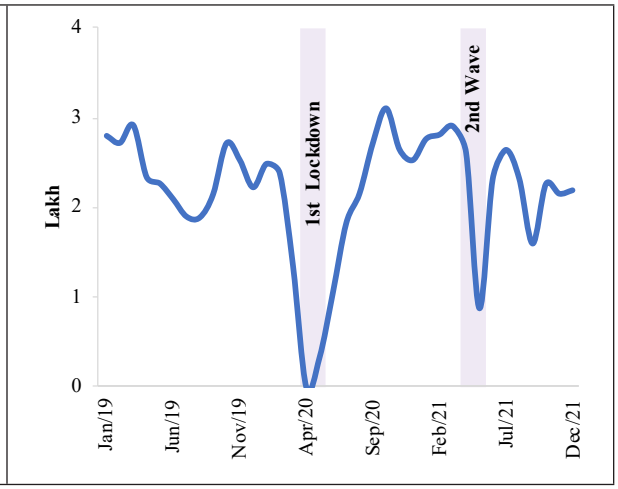
Source: NREGASoft

k. Fuel Consumption



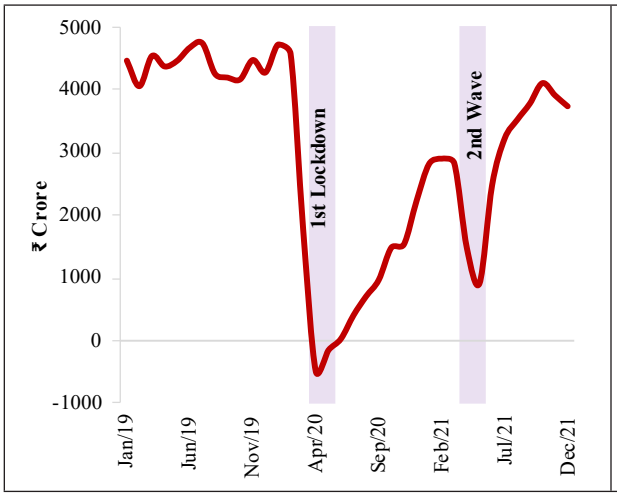
Source: PPAC, MoPNG

l. Passenger Vehicle Sales



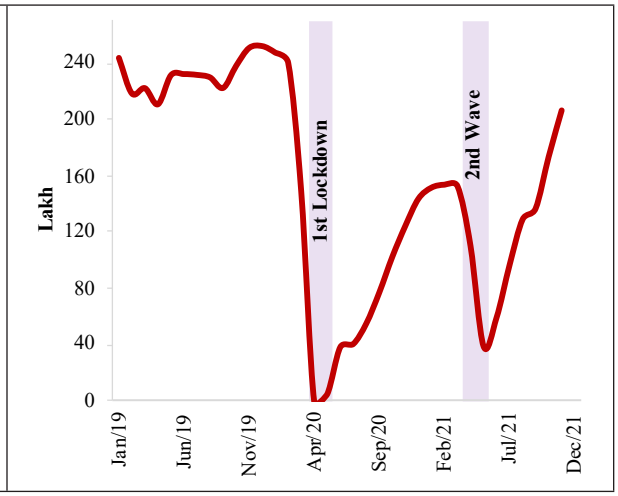
Source: SIAM

m. Railway Passenger Earnings



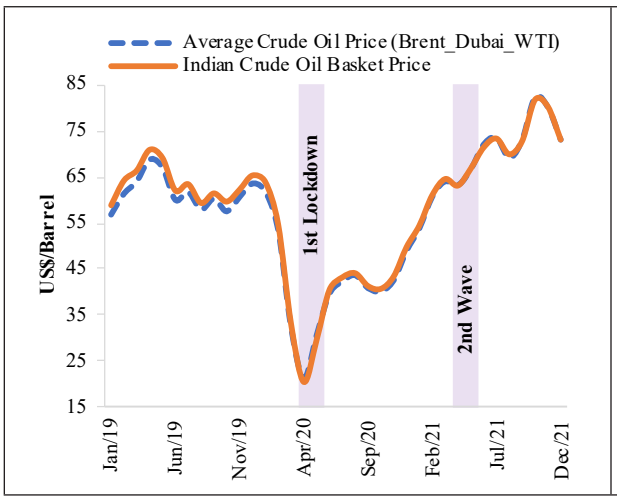
Source: Ministry of Railways

n. Air Passenger Traffic



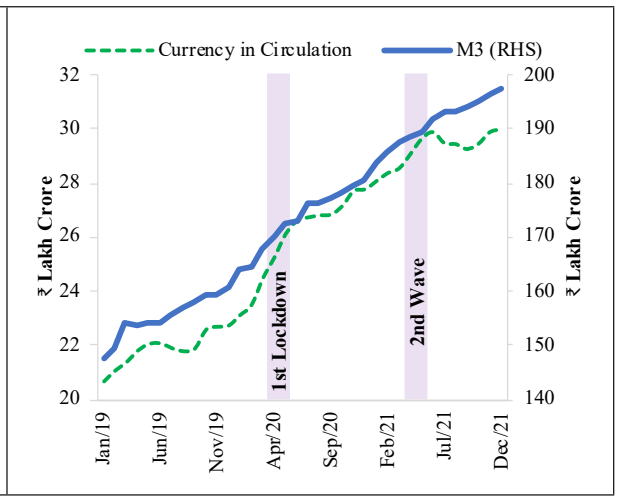
Source: AAI

o. Crude Oil Price



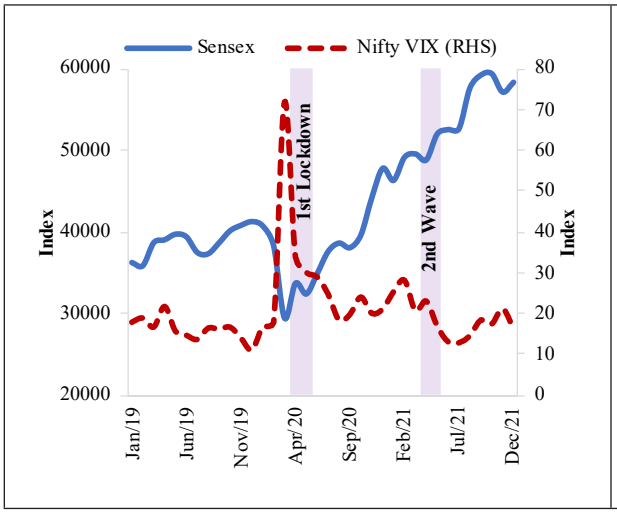
Source: PPAC, World Bank

p. Currency in Circulation and Money Supply



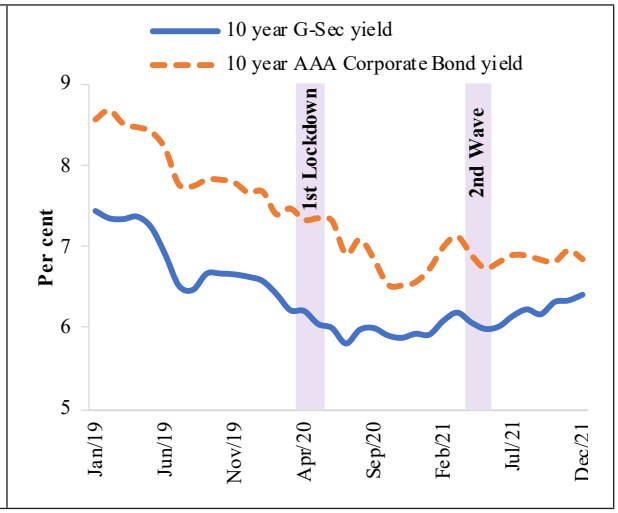
Source: RBI

q. Equity Markets



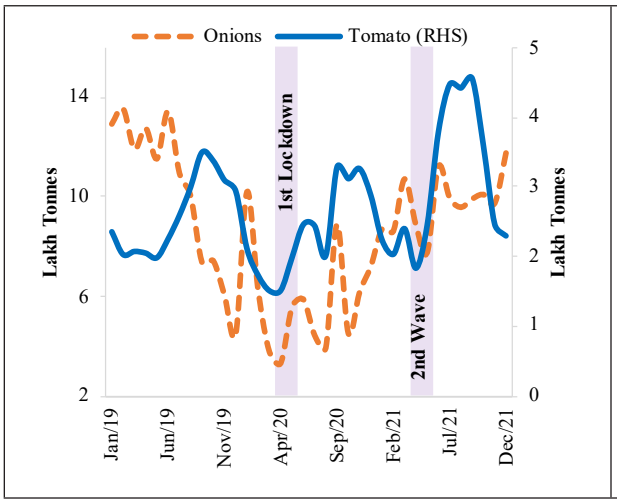
Source: NSE,BSE

r. Bond Yields



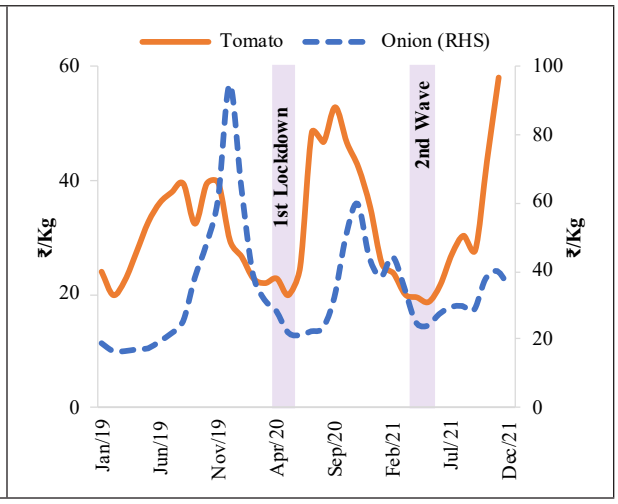
Source: CCIL

s. Mandi Arrivals



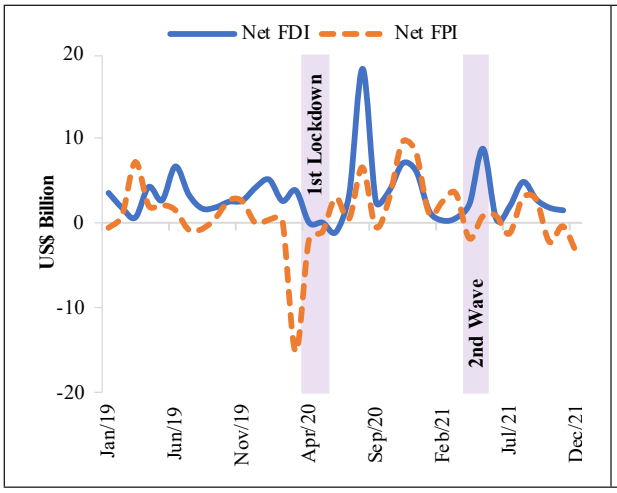
Source: Dept. of Consumer Affairs

t. Retail Prices



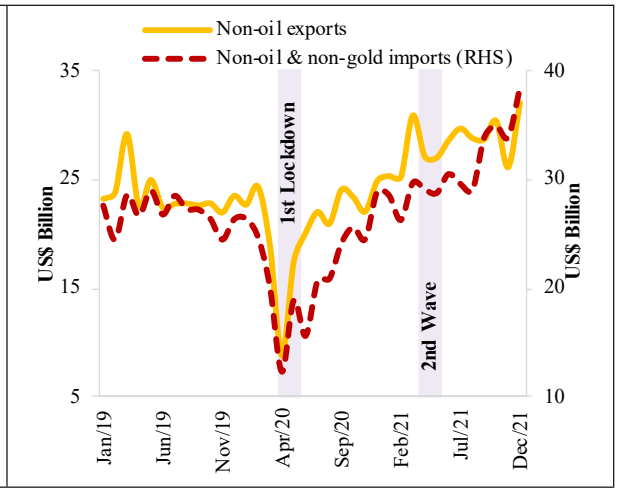
Source: Dept. of Consumer Affairs

u. FDI and FPI



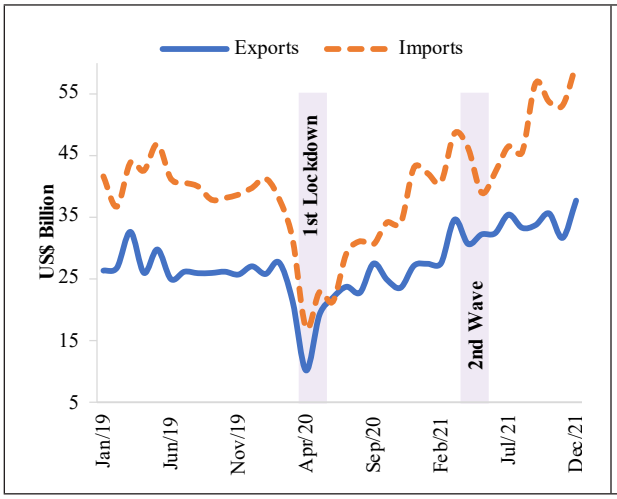
Source: CDSL, RBI

v. Non-Oil Import and Export



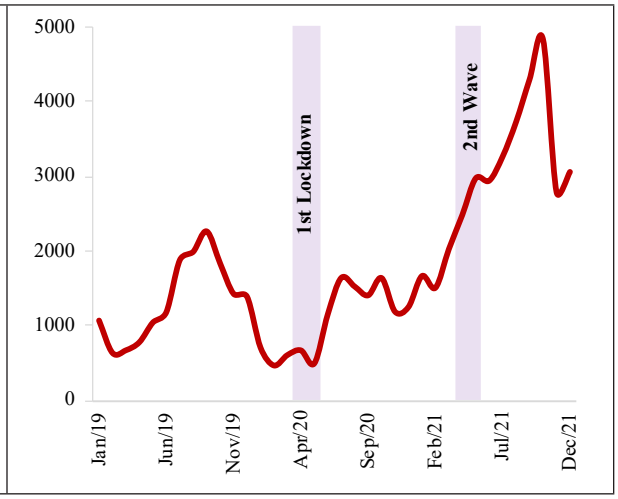
Source: Ministry of Commerce and Industry

w. Foreign Trade



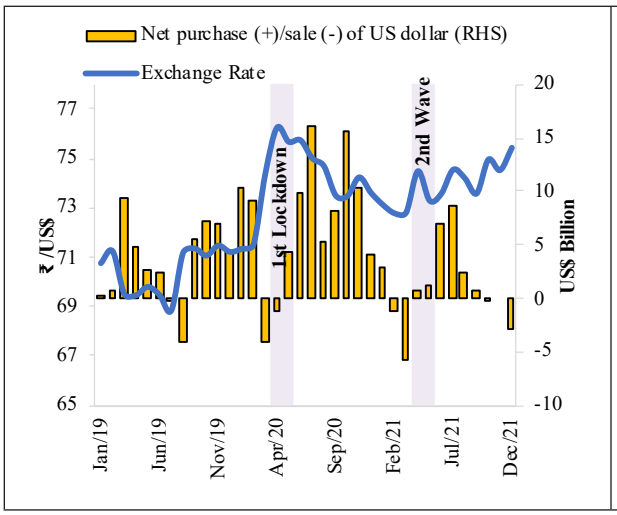
Source: Ministry of Commerce

x. Baltic Dry Index



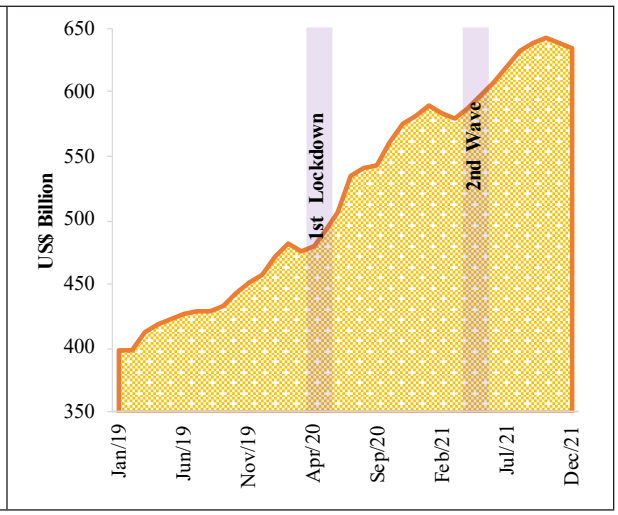
Source: The Great Eastern Shipping Co. Ltd.

y. Net Sale/Purchase of Dollar and Exchange Rate



Source: RBI

z. Foreign Exchange Reserves

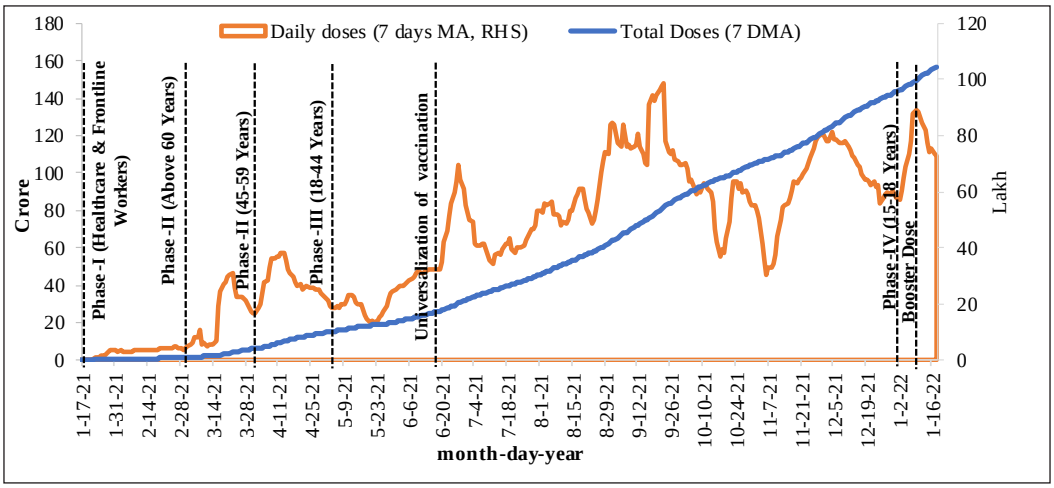


Source: RBI

VACCINATION

1.28 Vaccination has played a critical role (Box 1) in minimizing loss of lives, boosting confidence in the economy towards resumption of activity and containing the sequential decline in output due to second wave. As India completed one year of its COVID-19 vaccination drive on 16th January, 2022, it crossed the historic milestone of administrating more than 156 crore doses of vaccine (Figure 26). More than 88 crore people (93 per cent of the adult population) have received at least one dose of which around 66 crore people (70 per cent of the adult population) stands fully vaccinated. With vaccination drive further extended to the age group of 15-18 years starting 3rd January, 2022, more than 50 per cent of India's population in this age group have received their first dose of the vaccine as on 19th January. These measures have been discussed in detail in chapter 10.

Figure 26: Vaccination Coverage



Source: Survey Calculations using data from MoHFW

1.29 With India witnessing a resurgence in daily new cases since end-December 2021, marking the onset of Omicron variant induced third wave, rapid progress in vaccination coverage and further strengthening of testing and health infrastructure assume critical importance in protecting lives and containing the spread of the infection.

Box 1: India's vaccination drive

Vaccination has been an integral pillar of the comprehensive strategy of Government of India for containment and management of the pandemic. On 16th January 2021, India commenced the world's largest vaccination program with an ambitious target to inoculate its entire eligible population by 31st December 2021, with at least the first dose. In the first phase, the vaccination drive was sequentially expanded to cover Health Care Workers and Front Line Workers. The second phase started on 1st March (for above 60 years) and 1st April 2021 (from 45-59 years) making all persons aged 45 years and above eligible for vaccination. This cohort had accounted for more than 80 per cent of the COVID-19 mortality in the country. The third phase began on 1st May 2021 to vaccinate people in the age group of 18-45 years. From 3rd January 2022, the vaccination drive has been further extended to include those in the age group of 15-18 years. Taking cognisance of the recent global surge of the Omicron variant, the Variant of Concern declared by WHO on 26th November 2021, booster doses to healthcare and frontline workers as well as senior citizens above 60 years of age with co-morbidities have been allowed by Government from 10th January 2022. Vaccination access and pricing have been deregulated to quicken the pace of vaccination across states and all age groups.

The latest available data at the time of writing shows that 99 per cent of the registered Health Care Workers and 100 per cent of the Front-Line Workers, 87 per cent of the population aged between 18-44 years, 95 per cent of the population aged between 45-60 years and 89 per cent of the population above 60 years have been covered under the first dose. Vaccination drive continues to gather speed and breadth with the number of days taken to achieve an additional 10 crore doses reducing significantly from 86 days during the initial phase to 15 days now (Figure 1A). The average daily vaccination rate has increased four-fold from 19.3 lakh in May 2021 to 75.4 lakh as of 16th January 2021. As on 16th January 2022, eligible population (18 year and above) vaccinated in India with first dose was 93 per cent and with second dose 69.8 per cent (Figure 1C).

Figure 1A: Days to Reach Next 10 Crore Doses in India

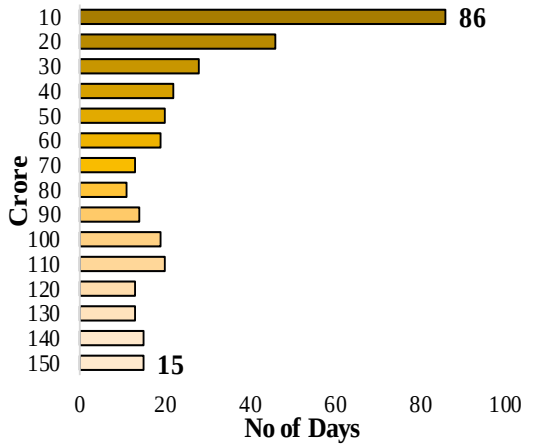
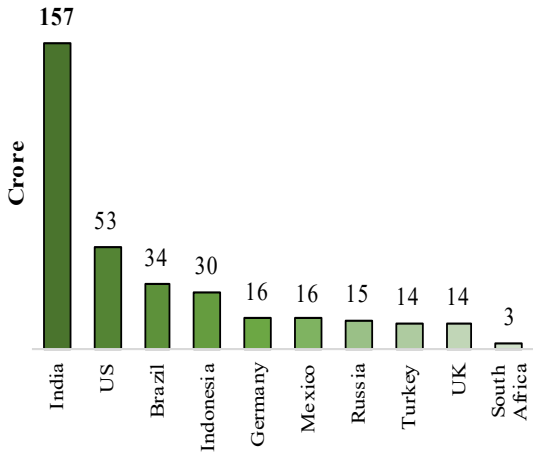
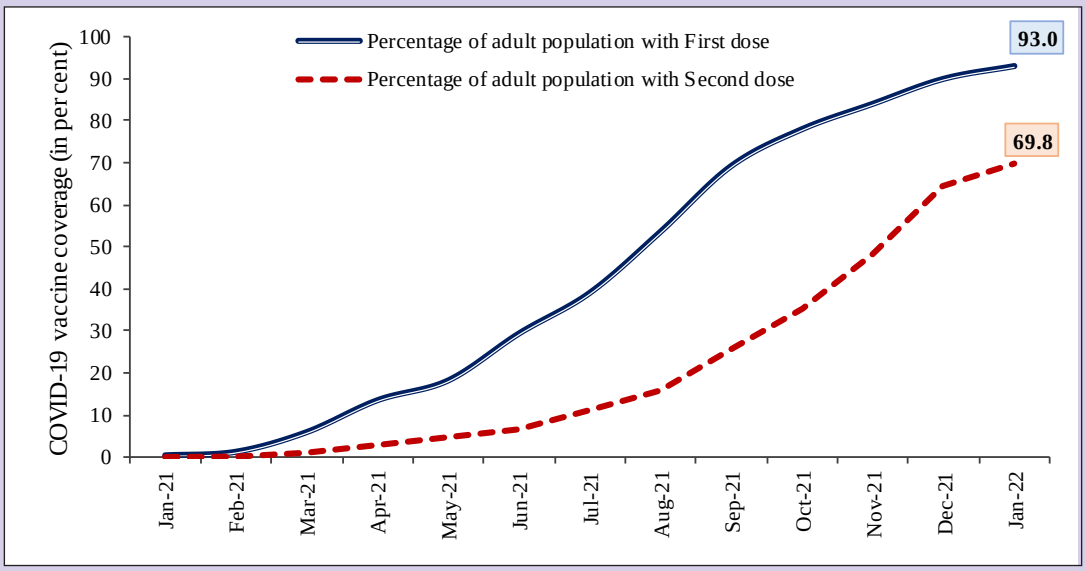


Figure 1B: Total Doses Administered across Countries



Source: Survey Calculations using data from MoHFW and WHO
Note: Figure 1B data as of 16th January 2022.

Figure 1C: Cumulative Percent of Adult Population with COVID-19 Vaccine (in per cent)



Source: Survey Calculations using data from MoHFW
Note: Data as of 16th January 2022.

MACROECONOMIC STABILITY

1.30 At the time of writing, a new wave in the form of the Omicron variant was sweeping across the world, inflation had jumped up in most countries, and the cycle of liquidity withdrawal was being initiated by major central banks. This is why it is especially important to look at India's macro-economic stability indicators and their ability to provide a buffer against the above stresses. Table 6 provides a quick comparison of various macroeconomic stability indicators in 2008-09 (Global Financial Crisis), 2012-13 (pre Taper Tantrum) and 2021-22 (second year of Covid-19 pandemic). This section analyses macroeconomic stability indicators on all fronts-external sector, fiscal indicators, financial sector and inflation.

Table 6: Comparison of Macroeconomic Indicators during Global Financial Crisis, Taper Tantrum and COVID-19

	Global Financial Crisis	Taper Tantrum	COVID-19 Pandemic	
Macroeconomic Indicators	**2008-09**	**2012-13**	**2021-22**	
CPI inflation	9.1	9.4	5.2	Apr-Dec 2021
India's Gross Fiscal Deficit as % of GDP	8.3	6.9	10.2	2021-22 (BE)
Fiscal Deficit of EMDEs (Asia) as % of GDP	1.6	1.7	7.8	2021
Current Account Balance as % of GDP	-2.3	-4.8	-0.2	Apr-Sept 2021
External Debt as % of GDP	20.7	22.4	20.2	June 2021
Forex Reserves (US$ billion)	252	292	634	31st Dec 2021
Govt Bond Yields 10-year	7.3	8.0	6.4	11th Jan 2022
Total FDI inflows (US$ billion)	8.3	34.0	48.4	Apr-Oct 2021
SCBs Capital to Risk Weighted Assets Ratio (CRAR)	13.2	13.9	16.5	Sept 2021
SCBs Provision Coverage Ratio	-	47.6	68.1	Sept 2021

Source: NSO, MoSPI, RBI, CGA, CDSL, Ministry of Finance, IMF.
Note: The taper tantrum happened in 2013. In the table above, 2012-13 is used to show the position just prior to taper tantrum as this is analogous to the present situation prior to withdrawal of liquidity in financial markets.

External sector

1.31 Despite all the disruptions caused by the global pandemic, India's balance of payments remained in surplus throughout the last two years (Figure 27). This allowed the Reserve Bank of India to keep accumulating foreign exchange reserves, which stands at US$634 billion on 31st December 2021). This is equivalent to 13.2 months of imports (Figure 28) and higher than the country's external debt. As of end-November 2021, India was the fourth largest foreign exchange reserves holder in the world after China, Japan, and Switzerland. A sizeable accretion in reserves led to an improvement in external vulnerability indicators such as foreign exchange reserves to total external debt, short-term debt to foreign exchange reserves, etc.

Figure 27: Surplus in BoP

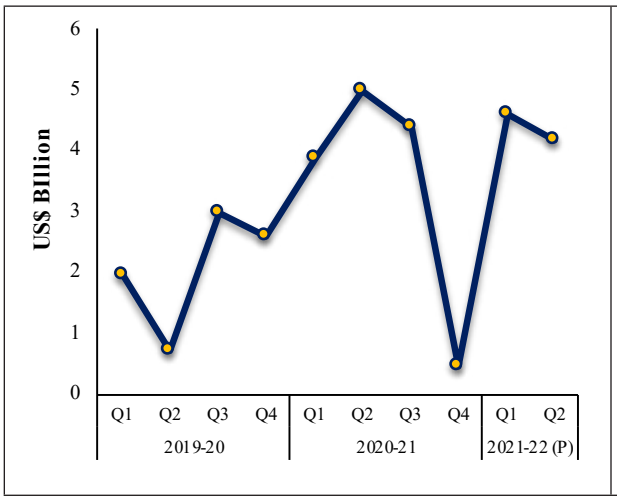
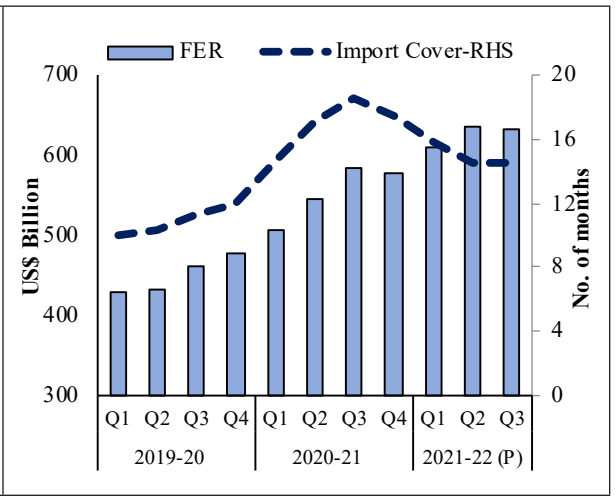


Figure 28: Forex reserves and Import Cover



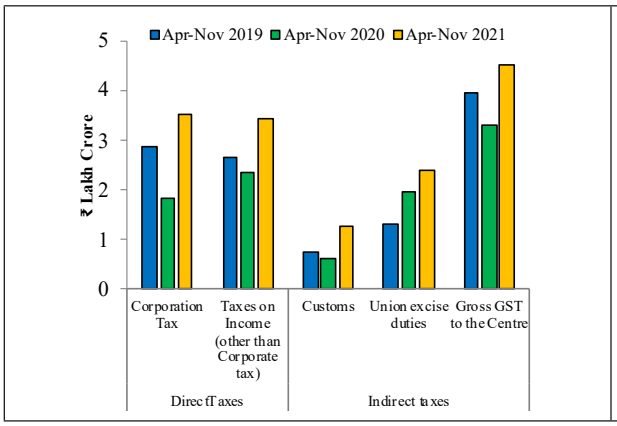
Source: RBI

1.32 India's salient external sector sustainability indicators are strong and much improved as compared to what they were during the global financial crisis or taper episode of 2013 (Table). For instance, the import cover and foreign exchange reserves are more than double now. The combination of high foreign exchange reserves, sustained foreign direct investment, and rising export earnings will provide a good buffer against any liquidity tapering/monetary policy normalisation in 2022-23 (details in Chapter 3).

Fiscal Balance

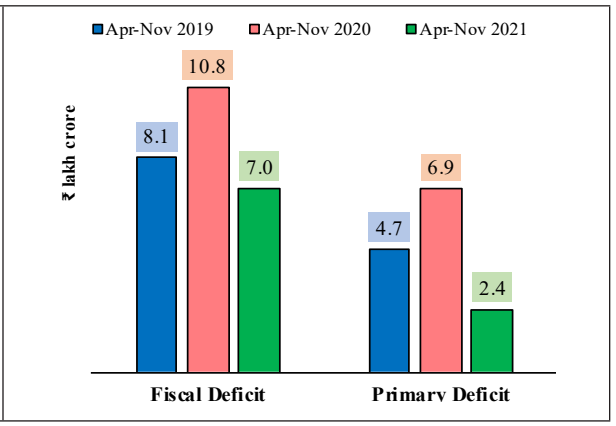
1.33 The fiscal support given to the economy as well as the health response caused the fiscal deficit and government debt to rise in 2020-21. However, there has been a strong rebound in government revenues in 2021-22 so far. The revenue receipts of the central government during April- November 2021 have gone up by 67.2 per cent (YoY), as against an estimated growth of 9.6 per cent in the 2021-22 Budget Estimates. The tax collections have been buoyant for both direct and indirect taxes (Figure 29. The gross monthly GST collections have crossed ₹ 1 lakh crore consistently since July 2021 (details in Chapter 2).

Figure 29: Direct and indirect tax revenue



Source: Office of CGA

Figure 30: Fiscal and Primary deficit



Source: Office of CGA

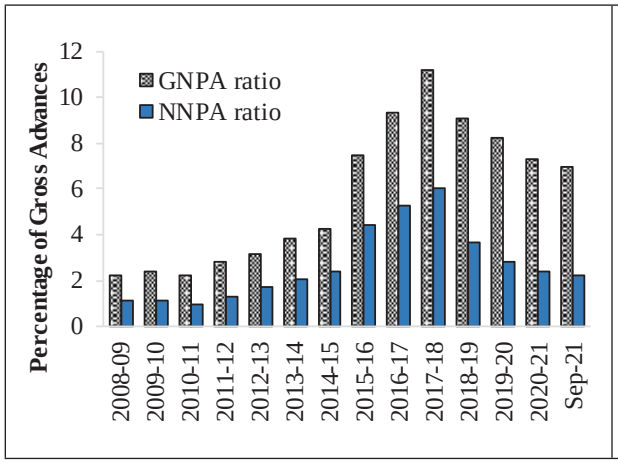
1.34 On account of a sustained revenue collection and a targeted expenditure policy by the Government of India, the fiscal deficit for April-November 2021 has been contained at 46.2 per cent of Budget Estimates (BE) which is nearly one third of the proportion reached during the same period of the previous two years (135.1% of BE in April-November 2020 and 114.8% of BE in April-November 2019). The primary deficit during the period April to November 2021 turned up at nearly half of the level it had reached during April to November 2019 (Figure 30) This implies that the Government has the fiscal capacity to maintain the support, and ramp up capital expenditure when required. The strong revival in revenues also provides Government with fiscal space to provide additional support as well, if necessary.

Financial Sector

1.35 The financial system is always a possible area of stress during turbulent times. However, India's capital markets, have done exceptionally well and have allowed record mobilization of risk capital for Indian companies. The Sensex and Nifty scaled up to touch its peak at 61,766 and 18,477 on October 18, 2021. Among major emerging market economies, Indian markets outperformed its peers in April-December 2021. The year 2021-22 so far has been an exceptional year for the primary markets with a boom in fundraising through IPOs by many new age companies/tech start-ups/unicorns. ₹ 89,066 crore was raised via 75 IPO issues in April-November 2021, much higher than in any year in the last decade (details in Chapter 4).

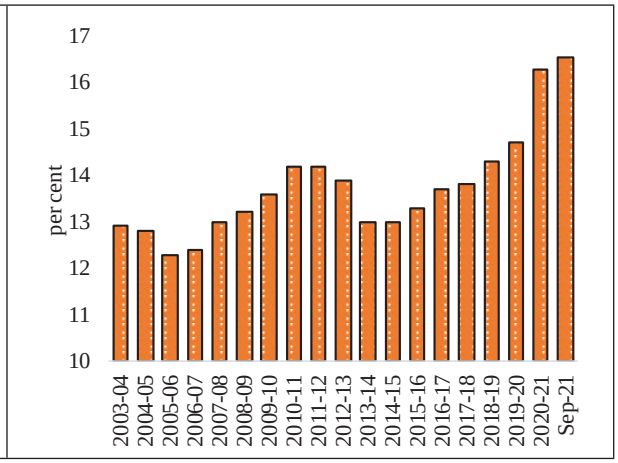
1.36 More significantly, the banking system is well capitalized and the overhang of Non-Performing Assets seems to have structurally declined even allowing for some lagged impact of the pandemic. The Gross Non-Performing Advances (GNPA) ratio (i.e. GNPAs as a percentage of Gross Advances) and Net Non-Preforming (NNPA) ratio of Scheduled Commercial Banks (SCBs) continued to decline since 2018-19. GNPA ratio of SCBs decreased from 7.5 per cent at end-September 2020 to 6.9 per cent at end-September 2021. NNPA ratio of SCBs also declined from 6 per cent at end of 2017-18 to 2.2 per cent at end-September 2021 (Figure 31). Simultaneously, the Capital Adequacy Ratio has continued to improve since 2015-16. The Capital to risk-weighted asset ratio (CRAR) of SCBs increased from 15.84 per cent at end-September 2020 to 16.54 per cent at end-September 2021 on account of improvement for both public and private sector banks (Figure 32).

Figure 31: GNPA and NNPA ratio of SCBs



Source: RBI

Figure 32: Capital Adequacy Ratio (per cent)

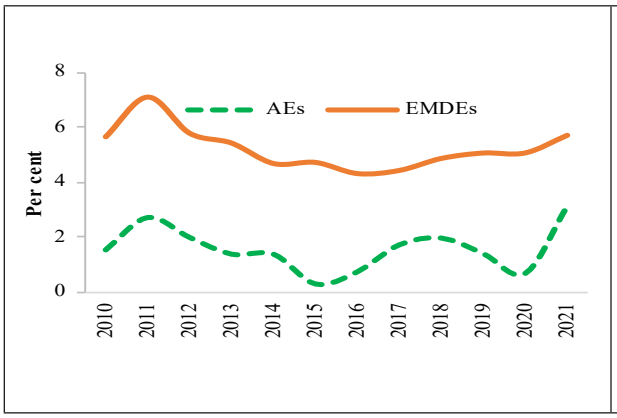


Source: RBI

Inflation

1.37 Inflation has reappeared as a global issue in both advanced and emerging economies (Figure 33). The surge in energy prices, non-food commodities, input prices, disruption of global supply chains, and rising freight costs stoked global inflation during the year. In India, Consumer Price Index (CPI) inflation moderated to 5.2 per cent in 2021-22 (April-December) from 6.6 per cent in the corresponding period of 2020-21. It was 5.6 per cent (YoY) in December 2021, which is within the targeted tolerance band (Figure 34). The decline in retail inflation in 2021-22 was led by easing of food inflation (details in Chapter 5). Wholesale Price Inflation (WPI), however, has been running in double-digits. The inflation in 'fuel and power' group of WPI was above 20 per cent reflecting higher international petroleum prices. Although the high WPI inflation is partly due to base effects that will even out, India does need to be wary of imported inflation, especially from elevated global energy prices.

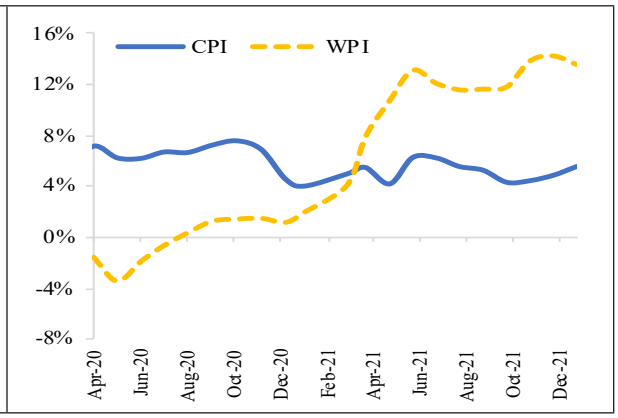
Figure 33: Consumer Price Inflation Rates



Source: World Economic Outlook, January 2022 Update, IMF

Note: Figures are annual averages; Figures for 2021 are projections. Advanced Economies include 40 economies and Emerging Markets and Developing Economies (EMDEs) include 156 economies as per IMF classification

Figure 34: CPI and WPI Inflation



Source: MoSPI, DPIIT

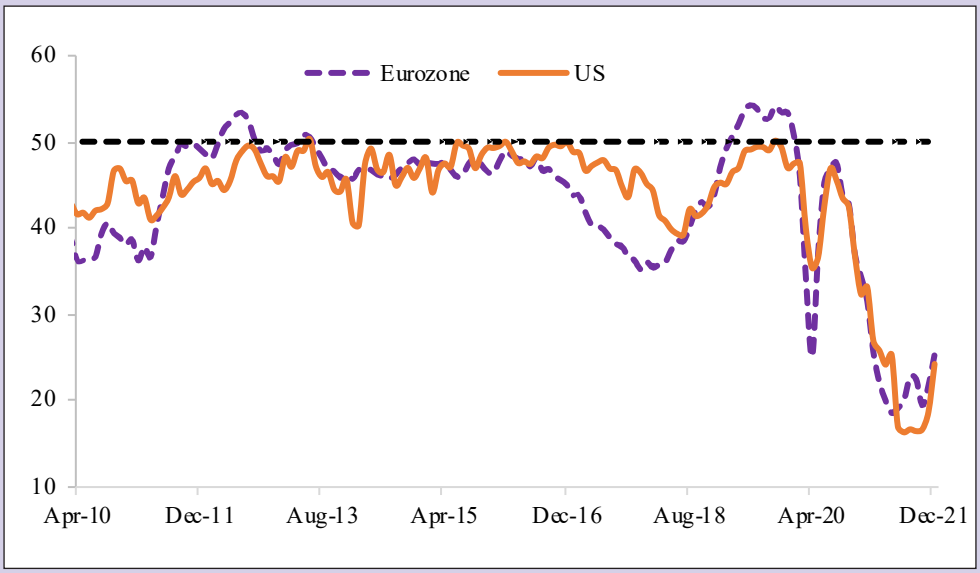
1.38 Overall, macro-economic stability indicators suggest that the Indian economy is well-placed to take on the challenges of 2022-23.

Box 2: Global Supply-Side Disruption

As the world economy recovered in 2021, it is faced with serious supply-side constraints ranging from delivery delays, container shortages and semiconductor chip shortages. According to the United Nations Conference on Trade and Development, "…*The COVID-19 pandemic led to a sudden dip in international seaborne trade. But by late 2020 there had been a swift rebound mainly in a container and dry bulk shipping. The recovery in container trade flows, which was mainly on East-West containerized trade lanes, created a series of logistical challenges and hurdles, pushed up rates and prices, increased delays and dwell times, and undermined service reliability.*"[1] As shown by the IHS Markit suppliers' delivery times index (Figure 2A), delivery times in the US and the European Union (EU) have hit their worst ever performance since 2010[2].

[1]UNCTAD, Review of Maritime Transport 2021. Pg 57.
[2]https://m.rbi.org.in//Scripts/BS_ViewBulletin.aspx?Id=20628

Figure 2A: Purchasing Manager's Sub-Index for Delivery Time Index

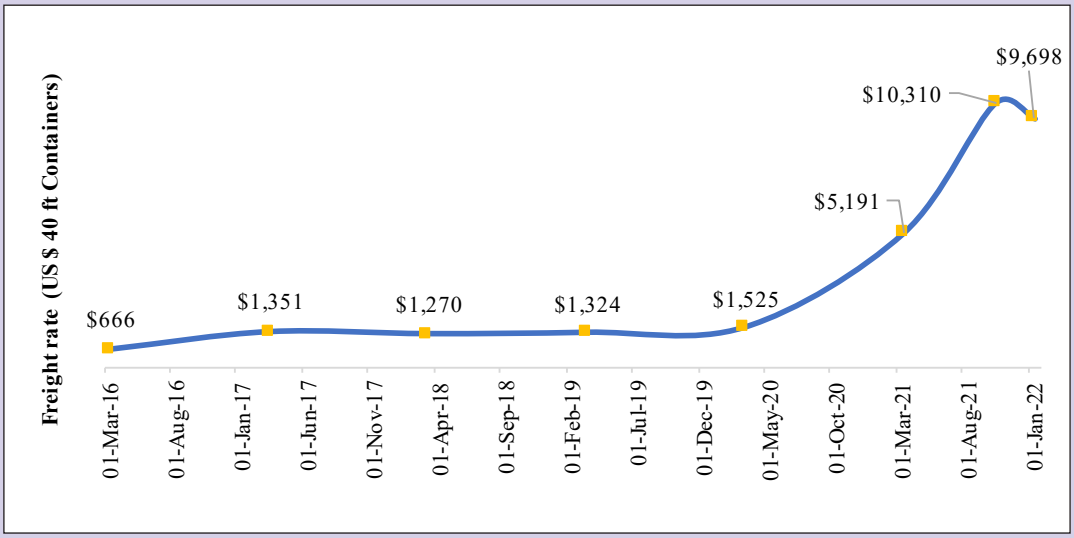


Source: IHS Markit.
Note: Readings above 50 indicate faster delivery times, readings at 50 signal no change, and below 50 indicate slower.

Shipping Container Shortage and Rising Trade Costs

The stress in the container shortages can be captured in the Drewry's[3] Composite World Container Index[4]. The Index stands at US$ 9,698.33 per 40ft container as of 20th January 2022 (Figure 2B). This is US$ 6,656 higher than the five-year average and remains 82 per cent higher than a year earlier. Such a significant rise in price for a prolonged period indicates that the disruptions in the global container market are not yet over and will continue to impact the global sea trade.

Figure 2B: World Container Index (US$ per 40ft container)



Source: Drewry Supply Chain Advisors (2022)

[3]Independent think tank on Maritime Transport
[4]https://www.drewry.co.uk/supply-chain-advisors/supply-chain-expertise/world-container-index-assessed-by-drewry

Also, the freight prices on major global sea routes have observed an upward trend during the same period. Table 2A below shows the prices and percentage change (YoY) from last year for major routes.

Table 2A: Spot freight rates by major route

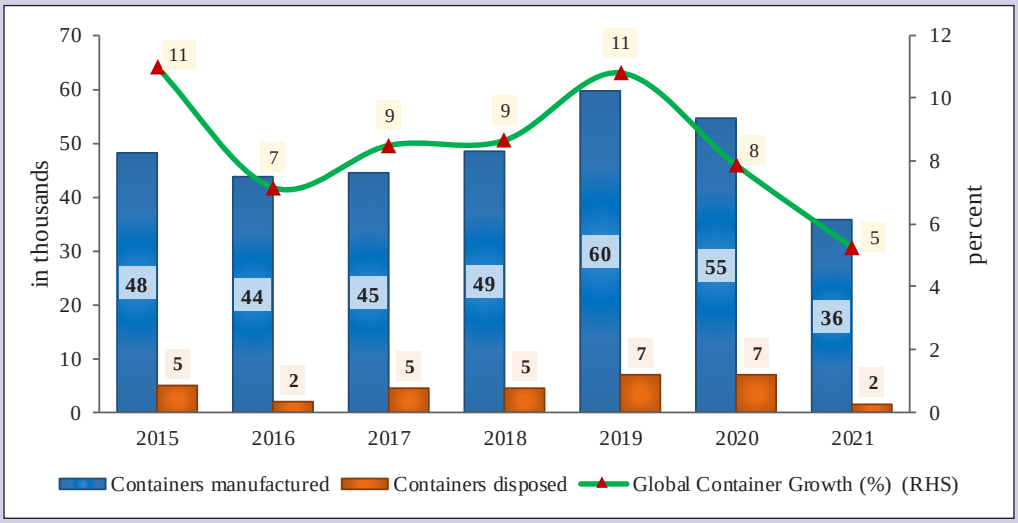
Route	As on 20th January 2022 (US$)	YoY change (per cent)
Composite Index	9,698	82
Shanghai - Rotterdam	14,053	55
Rotterdam - Shanghai	1,452	3
Shanghai - Genoa	12,794	46
Shanghai - Los Angeles	11,197	168
Los Angeles - Shanghai	1,262	138
Shanghai - New York	13,987	115
New York - Rotterdam	1,245	93
Rotterdam - New York	6,292	176

Source: Drewry, 2022

The shortage of containers has also impacted the Indian sea trade. According to the Federation of Indian Export Organisation set up under the Ministry of Commerce and Industry, the lack of containers has resulted in rising sea freight rates in the range of 300 per cent to 350 per cent[5].

Further, the production of the new containers has slowed since 2019 (Figure 2C). Simultaneously, a rise in the disposal of containers has also been observed for the same period. Thus, the overall growth in the containers has fallen from 11 per cent in 2019 to 5 per cent in 2021. Unless the production is ramped up significantly across the globe, this will remain a persistent problem.

Figure 2C: Manufacturing and Disposal of Containers



Source: 2021 Global Tank Container Fleet Survey, International Tank Container Organisation

[5]A Speech of FIEO President, Sept 2021. https://www.fieo.org/view_detail.php?lang=0&id=0,21&dcd=7452&did=16321181898hbfjpo6pvshqpu4f2sib0v776

Semiconductors industry spillover in the automobile industry

A report by investment bank Goldman Sachs 2021 states that the supply chain disruptions in the semiconductor industry have spillovers in over 169 industries. The manufacturing of semiconductors requires large amount of capital and has an average gestation period of 6-9 months. Moreover, it has a fairly long production cycle of about 18-20 weeks. Hence, any recovery from the supply chain disruptions will be a slow and costly affair.

The report further stated that microchips and semiconductors account for about 4.7 per cent of value added by the automotive industry[6]. With the delay in supply, the average lead time[7] in the automobile industry for 2021 has been around 14 weeks globally[8]. India has also experienced similar trends in the automobile sector. As per data from the Society of Indian Automobile Manufacturers (SIAM), carmakers sold 219,421 passenger vehicles in the domestic market in December 2021, down 13 per cent (YoY). This is not a demand problem but a supply-side issue. The information from various car manufacturer's websites reveals a cumulative pendency of over 7 lakh orders[9] , as of December 2021.

SUPPLY SIDE REFORMS

1.39 Another distinguishing feature of India's economic response has been an emphasis on supply-side reforms rather than a total reliance on demand management. These supply-side reforms include deregulation of numerous sectors, simplification of processes, removal of legacy issues like 'retrospective tax', privatisation, production-linked incentives and so on. Some of these have been listed in Table 7, and have been discussed in detail in the respective chapters. Even the sharp increase in capital spending by the Government can be seen as both demand and supply response as it creates infrastructure capacity for future growth.

1.40 An important theme that has been discussed through the course of the Economic Survey is that of 'process reforms'. It is important to distinguish between deregulation and process reforms. The former relates to reducing or removing the role of government from a particular activity. In contrast, the latter broadly relates to simplification and smoothening of the process for activities where the government's presence as a facilitator or regulator is necessary. Chapter 2 discusses the reforms undertaken in the public procurement policy- launch of Government e-Marketplace (GeM) in 2016 for standard routine use items and the new procurement guidelines issued in October 2021 for non-standard items and projects. Chapter 4 discusses for the need for simplification of voluntary liquidation process for corporates and for institutionalising a standard process for Cross Border Insolvency Process. Similarly, chapter 9 discusses the simplification of Drone rules and reforms in telecom sector, and the need for reforms in the patent application regime.

1.41 The emphasis given to the supply-side in India's COVID-19 response is driven by two important considerations. First, Indian policy-makers saw the disruptions caused by travel-

[6]https://www.msn.com/en-us/news/crime/global-chip-shortage-hit-these-169-industries-gs/vi-BB-1g4hv8

[7]Lead time: The difference between the date of order and actually receiving

[8]https://www.goldmansachs.com/insights/pages/the-daily-check-in/the-semiconductor-shortage-of-2021/transcript.pdf

[9]Various company websites.

restrictions, lockdowns and supply-chain breakdowns as an interruption of the economy's supply-side. Although this also squeezed demand, it is not correct to see the pandemic related economic slowdown as just a demand problem as happens with most economic cycles. Second, the post-Covid world will be impacted by a wide variety of factors – changes in technology, consumer behaviour, geo-politics, supply-chains, climate change and so on. All of these factors will also interact in unpredictable ways with each other. Therefore, the post-Covid economy will not be merely a re-inflation of the pre-Covid economy. Simply building it back with demand measures is not a solution.

1.42 There are two common themes in India's supply-side strategy: (i) Reforms that improve flexibility and innovation in order to deal with the long-term unpredictability of the post-Covid world. This includes factor market reforms; deregulation of sectors like space, drones, geo-spatial mapping, trade finance factoring; process reforms like those in government procurement and in telecommunications sector; removal of legacy issues like retrospective tax; privatization and monetization, creation of physical infrastructure, and so on. (ii) Reforms aimed at improving the resilience of the Indian economy. These range from climate/environment related policies; social infrastructure such as public provision of tap water, toilets, basic housing, insurance for the poor, and so on; support for key industries under Atmanirbhar Bharat; a strong emphasis on reciprocity in foreign trade agreements, and so on. Some commentators have likened the Atmanirbhar Bharat approach to a return to old school protectionism. Far from it, the focus on economic resilience is a pragmatic recognition of the vagaries of international supply-chains (see discussion in Box 2).

1.43 As the reader may have guessed, the two pronged approach of "flexibility" and "resilience" is analogous to the Barbell strategy used for the short-term response to the pandemic. This should not be surprising as they are both attempting to deal with the same issue – uncertainty about the future flow of events.

Table 7: Key supply side measures/reforms

Sectors	Measures/Reforms
Industry	• Production Linked Incentive Scheme approved for 13 sectors including (i) Automobiles and auto components, (ii) Pharmaceuticals drugs, (iii) Specialty steel, (iv) Telecom & Networking Products, (v) Electronic/ Technology Products, (vi) White Goods (ACs and LEDs), (vii) Food products, (viii) Textile products: MMF segment and technical textiles, (ix) High efficiency solar PV modules, (x) Advanced Chemistry Cell battery, (xi) Manufacturing of medical devices, (xii) Mobile manufacturing & specified electronic components and (xiii) Critical key starting materials/ Drug intermediaries & Active Pharmaceutical Ingredients • Retrospective tax repealed to promote tax certainty and foreign investment.

Business Process Outsourcing (BPO) sector	*Liberalized guidelines for Other Service Providers (OSPs)* ➢ Clear definition of OSP: The applicability of new guidelines is limited to entities that provide 'Voice based BPO services' to its customers. Voice based BPO services are defined to mean call centre services. ➢ Removal of registration requirement for OSP centres in India. ➢ No bank guarantee required for any facility or dispensation under these guidelines. ➢ Distinction between Domestic and International OSPs removed. ➢ Work from home and remote locations allowed: The agents at home/ anywhere shall be treated as remote agents of the OSP centre. The interconnection between remote agents is permitted using any technology including broadband over wireline/wireless. The remote agent can now directly connect to customer Electronic Private Automatic Branch Exchange (EPABX) /centralised EPABX without the need to connect with the OSP centre. ➢ Interconnection between two or more OSP centres of the same or unrelated company is now permitted. ➢ Infrastructure sharing among OSPs is now allowed. The guidelines allow the use of EPABX at foreign locations.
Telecom	• *Structural reforms* ➢ Rationalization of Adjusted Gross Revenue: Non-telecom revenue will be excluded from the definition of Adjusted Gross Revenue. ➢ Bank Guarantees rationalized: Huge reduction in Bank Guarantee requirements against License Fee and other similar levies. For auctions held henceforth, no Bank Guarantees will be required to secure instalment payments. ➢ Interest rates rationalized and penalties from delayed payments of License Fee or Spectrum Usage Charge (SUC) removed. ➢ 100 per cent FDI under automatic route permitted in telecom sector. ➢ No Spectrum Usage Charge (SUC) for spectrum acquired in future spectrum auctions. ➢ Spectrum sharing encouraged: The additional SUC of 0.5 per cent for spectrum sharing removed. *Process Reforms* • ➢ Requirement of customs clearance for import of wireless equipment removed and replaced with self-declaration to improve the ease of doing business. ➢ Standing Advisory Committee on Radio Frequency Allocation clearance process for installing towers shall be through self-declaration/ automated time-bound approvals on SaralSanchar portal of Department of Telecom. ➢ Self-KYC permitted now through an app/web- based process. ➢ Paper Customer Acquisition Forms will be replaced by digital storage of data.

	➢ Auction calendar fixed: Spectrum auctions to be normally held in the last quarter of every financial year. • Along with this, various measures were undertaken to address liquidity requirement of telecom service providers including moratorium/ deferment on payments of dues arising out of the adjusted gross revenue judgement or due payments of spectrum purchased in past auctions (excluding the auction of 2021).
Public procurement policy	*New guidelines for procurement and project management were announced in October 2021* ➢ Quality-cum-Cost Based Selection for the selection of bidders for works and non-consultancy services allowed as well. ➢ Stringent deadlines for making payments: The new guidelines stipulate timely release of payments of 75 per cent or more of bills raised within 10 working days of the submission of the bill. The remaining bill payment is to be made after final checking within 28 working days. ➢ Arbitration and dispute resolution: Procuring authorities to set a special board/committee to review the case before filing an appeal against any order. Government has allowed for the release of 75 per cent of the amount to contractors against a bank guarantee in cases where a procuring agency has challenged an arbitral award.
Aviation	*Drone Rules (announced in August 2021)* ➢ Extended applicability of rules: Drones up to 500 kg are now subject to regulations, compared to the earlier limit of 300 kg. ➢ Several approvals abolished with the total forms to be filled reduced from 25 to 5. ➢ Types of fees reduced from 72 to 4. ➢ Quantum of fees to be paid considerably reduced and delinked with the size of drone. ➢ Removal of requirement of prior security clearance. ➢ Earlier restrictions on all foreign entities owning, manufacturing or dealing with drones in India has been done away with. ➢ No remote pilot licence required for micro drones (for non-commercial use) and nano drones. ➢ Expanded area of drone operations: An interactive map on the Digital Sky platform specifies colour-coded zones on the map i.e. green, yellow and red, indicating free zones, those which require prior permission, and no-fly zones, respectively. The perimeters of these zones have also been liberalised to increase freely accessible airspace under the green category.
Financial sector	• *Banking: Reforms in Deposit Insurance* ➢ Increase in deposit insurance from ₹ 1 lakh to ₹ 5 lakh per depositor per bank. This led to 98.1 per cent of the total number of accounts being fully protected and 50.9 per cent of total deposits being insured at end-March 2021.

<table>
<tr><td></td><td>

Introduced interim payments: Interim payment will be made by Deposit Insurance and Credit Guarantee Corporation (DICGC) to depositors of those banks for whom any restrictions/ moratorium have been imposed by RBI under the Banking Regulation Act resulting in restrictions on depositors from accessing their own savings.
Timeline of maximum of 90 days has been fixed for providing interim payment to depositors.

Expansion in the factoring ecosystem: The earlier condition of NBFCs whose principal business was factoring has been removed and now all NBFCs are permitted to undertake factoring business.

</td></tr>
<tr><td>Micro Small & Medium Enterprises (MSMEs)</td><td>

Revised definition of MSMEs:

Removal of distinction between manufacturing and service MSMEs.
Upward revised definition of MSMEs in industry and service sector. The upper limit as per new definition is as follows:

<table>
<tr><th></th><th>Investment in Plant and Machinery or Equipment</th><th>Annual Turnover</th></tr>
<tr><td>Micro</td><td>< ₹1 crore</td><td>< ₹ 5 crore</td></tr>
<tr><td>Small</td><td>< ₹ 10 crore</td><td>< ₹ 50 crore</td></tr>
<tr><td>Medium</td><td>< ₹ 50 crore</td><td>< ₹ 250 crore</td></tr>
</table>

Simplified registration process for MSMEs.
Increasing market access to micro and small industries (MSEs) under public procurement policy: All Central Ministries, Government Departments and CPSEs are required to procure 25 per cent of their annual requirements of goods and services from MSEs. Further, no global tenders for procurement up to ₹ 200 crores.

</td></tr>
<tr><td>Space & Geospatial sector</td><td>

Liberalizing the traditional Satellite Communication and Remote Sensing sectors for increased private sector participation.
Guidelines for the creation, acquisition and use of geospatial data, including maps: Geospatial data was previously heavily regulated and required licenses to be obtained for the use of such data. Now the guidelines have been liberalised:

Introduction of self-certification regime: All entities are now required to follow a self-certification process to show adherence to the guidelines, as opposed to obtaining prior approval or licenses for the use of geospatial data and maps.
Relaxation of restricted areas: Mapping activities are prohibited only for specific attributes of highly sensitive locations, as opposed to restricted areas under the previous regime.
Relaxation on export restrictions: The guidelines permit the export of maps with resolutions up to a 1:100 resolution thereby relaxing the previous threshold of 1:250000.
Open access to publicly funded data: The guidelines require all geospatial data produced using public funds, including data produced by the Survey of India, to be freely accessible to all Indian entities.

</td></tr>
</table>

Disinvestment	• New Public Sector Enterprise Policy and Asset Monetisation Strategy New policy is for strategic disinvestment of public sector enterprises Public sector commercial enterprises are classified as Strategic and Non-Strategic sectors, with the policy of privatisation in non-strategic sectors and bare minimum presence even in strategic sectors. The identified strategic sectors are: (i) Atomic Energy, Space & Defense; (ii) Transport & Telecommunication; (iii) Power, Petroleum, Coal & other minerals; and (iv) Banking, Insurance & Financial Services Privatization of Air India. • National Monetisation Pipeline Aggregate monetisation potential of ₹ 6 lakh crore through core assets of the Central Government over a four year period from 2021-22 to 2024-25. Top 5 sectors including roads, railways, power, oil & gas pipelines and telecom account for around 83 per cent of the aggregate value. So far, CPSEs have referred ~3400 acres of land and other non-core assets for monetization.
Labour Reforms	• Central Government notified four labour codes.
Defence	• Corporatisation of Ordnance Factory Board (OFB) approved and 7 new Defence Public Sector Undertakings created. • FDI enhanced in Defence sector up to 74 per cent through the automatic route and up to 100 per cent by government route

GROWTH OUTLOOK

1.44 The Indian economy is estimated to grow by 9.2 per cent in real terms in 2021-22 (as per the First Advance Estimates), after a contraction of 7.3 per cent in 2020-21. Growth in 2022-23 will be supported by widespread vaccine coverage, gains from supply-side reforms and easing of regulations, robust export growth, and availability of fiscal space to ramp up capital spending. The year ahead is also well poised for a pick-up in private sector investment with the financial system in a good position to provide support to the revival of the economy. Thus, India's GDP is projected to grow in real terms by 8.0-8.5 per cent in 2022-23. This projection is based on the assumption that there will be no further debilitating pandemic related economic disruption, monsoon will be normal, withdrawal of global liquidity by major central banks will be broadly orderly, oil prices will be in the range of US$70-$75/bbl, and global supply chain disruptions will steadily ease over the course of the year.

1.45 The above projection is comparable with the World Bank's and Asian Development Bank's latest forecasts of real GDP growth of 8.7 per cent and 7.5 per cent respectively for 2022-23. As per the IMF's latest World Economic Outlook (WEO) growth projections released on 25th January, 2022, India's real GDP is projected to grow at 9 per cent in both 2021-22 and 2022-23 and at 7.1 per cent in 2023-24. This projects India as the fastest growing major economy in the world in all these three years (Table 8).

Table 8: Overview of the World Economic Outlook Projections

Country/Country groups	Year over Year *(Percent change, unless noted otherwise)*			
	Estimate		Projections	
	2020	2021	2022	2023
World Output	–3.1	5.9	4.4	3.8
Advanced Economies	–4.5	5.0	3.9	2.6
United States	–3.4	5.6	4.0	2.6
Euro Area	–6.4	5.2	3.9	2.5
Germany	–4.6	2.7	3.8	2.5
France	–8.0	6.7	3.5	1.8
Italy	–8.9	6.2	3.8	2.2
Spain	–10.8	4.9	5.8	3.8
Japan	–4.5	1.6	3.3	1.8
United Kingdom	–9.4	7.2	4.7	2.3
Canada	–5.2	4.7	4.1	2.8
Other Advanced Economies*	–1.9	4.7	3.6	2.9
Emerging Market and Developing Economies	–2.0	6.5	4.8	4.7
Emerging and Developing Asia	–0.9	7.2	5.9	5.8
China	2.3	8.1	4.8	5.2
India**	**–7.3**	**9.0**	**9.0**	**7.1**
ASEAN***	–3.4	3.1	5.6	6.0
Emerging and Developing Europe	–1.8	6.5	3.5	2.9
Russia	–2.7	4.5	2.8	2.1
Latin America and the Caribbean	–6.9	6.8	2.4	2.6
Brazil	–3.9	4.7	0.3	1.6
Mexico	–8.2	5.3	2.8	2.7
Middle East and Central Asia	–2.8	4.2	4.3	3.6
Saudi Arabia	–4.1	2.9	4.8	2.8
Sub-Saharan Africa	–1.7	4.0	3.7	4.0
Nigeria	–1.8	3.0	2.7	2.7
South Africa	–6.4	4.6	1.9	1.4

Source: IMF WEO, January 2022 Update

* Excludes the Group of Seven (Canada, France, Germany, Italy, Japan, United Kingdom, United States) and euro area countries.

** For India, data and forecasts are presented on a fiscal year basis, with FY 2021/2022 starting in April 2021. For the January 2022 WEO Update, India's growth projections are 8.7 per cent in 2022 and 6.6 percent in 2023 based on calendar year. The impact of the Omicron variant is captured in the column for 2021 in the table.

*** Indonesia, Malaysia, Philippines, Thailand, Vietnam.

ANNEX

List of 80 High Frequency Indicators (HFIs)	
1	10 year AAA Corporate Bond yield
2	10 year G-Sec yield
3	8-Core Industries Index
4	Aadhar-enabled payment system (AePS) transactions
5	ATM withdrawals
6	Average Daily Electronic Toll Collection (ETC)
7	Average Retail price (Wheat, Rice, Tur, Sugar, Potato, Onions, Tomato, Groundnuts, Palm Oil, Eggs, Milk)
8	Baltic Dry Index
9	Bank credit
10	Capacity Utilisation
11	Capital Expenditure
12	Cement production
13	Commercial Papers (CP)
14	Corporate sector profits
15	Consumer Price Index
16	Consumer Price Index Core
17	Consumer Price Index Food
18	Crude oil Indian basket
19	Crudeprice Brent, Dubai, West Texas Intermediate
20	Currency in circulation
21	Demat accounts
22	Domestic Auto sales
23	Domestic Passenger vehicles sales
24	Domestic Tractor sales
25	Domestic air passenger traffic
26	Employees' Provident Fund Organisation Net Subscribers outstanding
27	E-way bills generated
28	Exchange Rate
29	External Commercial Borrowings
30	Fertilisers sales
31	Forex reserves

32	Fuel consumption
33	Government Market Borrowings
34	Global PMI Composite
35	Gross Foreign Direct Investment
36	Gross tax revenue (Central Govt)
37	Goods and Services Tax collections
38	Housing Launches
39	Housing sales
40	Index of Industrial Production General Index, Consumer Durables, Consumer Non-Durables
41	Merchandise Exports/Imports
42	MGNREGA work created
43	MGNREGA work demanded
44	Money supply
45	Natural gas production
46	Net FDI
47	Net Foreign Portfolio Investment
48	Net Liquidity injections
49	Net purchase (+)/sale (-) of US dollar
50	Nifty/Sensex
51	Nominal Effective Exchange Rate (NEER)
52	Non food credit
53	Non oil exports
54	Non oil non gold imports
55	Number of Telecom subscribers
56	Purchasing Managers' Index Manufacturing
57	Purchasing Managers' Index Services
58	Port Cargo Traffic
59	Power Consumption
60	Primary Issuances
61	Private placement of Corporate Bonds
62	Rail Freight Traffic
63	Rail Passenger Earnings

64	RBI's: Current Situation Index
65	RBI's: Future Expectation Index
66	Real Effective Exchange Rate (REER)
67	Real Estate Price Index-RBI
68	Total Retail financial transactions (NPCI)
69	Sales of Two/Three wheelers
70	Sector wise Nifty Index: Consumption, Fast Moving Consumer Goods, Infrastructure, Real Estate, Metal
71	Sectoral Bank credit
72	Steel consumption
73	Steel production
74	Total Mandi Arrivals (Wheat, Rice, Tur, Sugar, Potato, Onions, Tomato, Groundnuts, Palm Oil)
75	Unified Payments Interface transactions
76	US-Dow Jones Index
77	Vehicle registrations
78	Weighted Average Interest Rate on fresh bank lending
79	Wholesale Price Index
80	Yield spread across different maturities

Fiscal Developments

02
CHAPTER

In the backdrop of an evolving pandemic situation, Government of India's agile policy response differed from the waterfall strategy of introducing front-loaded stimulus packages, adopted by most other countries in 2020. Immediately after the COVID-19 outbreak, Government of India chose to first create safety-nets for the vulnerable sections of the society/ small businesses before going on to introduce stimulus packages to boost economic recovery in the second half of 2020-21. On the fiscal front, capital expenditure was restrained during Q1 and Q2 of 2020-21 owing to movement restrictions in containment zones, and unavailability of contractors/workers to carry out capital works. However, with the easing of movement and health-related restrictions, capital spending was pushed up in Q3 of 2020-21. Thus, the change in the mix of stimulus effected in 2020-21 towards a larger share of capital spending, has continued in the current year as well. The stimulus measures announced so far during the year 2021-22 include liquidity enhancing and investment boosting measures such as the Production Linked Incentives scheme, credit guarantee schemes and export boosting initiatives.

With the bouncing back of the economy in the current financial year, the revenue receipts of the central government during April to November 2021 have gone up by 67.2 per cent (YoY), as against an expected growth of 9.6 per cent in the 2021-22 Budget Estimates (over 2020-21 Provisional Actuals). The buoyant tax collections of both direct and indirect taxes, along with the non-tax revenue boosted by RBI's surplus transfer to the Government, have contributed to the increase in the revenue pool. The gross tax revenue during this period has registered a growth of over 50 per cent in YoY terms. This performance is strong not only over the corresponding period of the previous year but also when compared to the pre-pandemic levels of 2019-20. The gross monthly GST collections have crossed the ₹ 1 lakh crore mark consistently since July 2021, after quickly recovering from a dip in June 2021 following the second wave of COVID-19. The impact of the second wave of COVID-19 on GST collections was much more muted as compared to the first wave. The ongoing improvement in revenue performance during the current year can also be attributed to increased tax compliance enabled by various tax administration and policy reforms implemented by the Government in the past few years.

The New Public Sector Enterprise Policy and Asset Monetisation Strategy introduced by the Government reaffirm its commitment towards privatization and strategic disinvestment

of Public Sector Enterprises. The privatisation of Air India has been particularly important, not only in terms of garnering disinvestment proceeds but also for boosting the privatisation drive.

The expenditure policy of the central government during 2021-22 has a strong emphasis on capital expenditure. The Budget 2021-22 had not only enhanced the expenditure estimates but also directed them towards more productive capital expenditure. The capital expenditure shows an increasing trend over the first three quarters of 2021-22. During April- November 2021, the capital expenditure has grown by 13.5 per cent (YoY), with focus in infrastructure-intensive sectors like roads and highways, railways, and housing and urban affairs. This increase is particularly substantial given the high YoY growth in capital expenditure registered during the corresponding period of the previous year as well. In addition, the Centre has also put in place several incentives to boost the capital expenditure by the States.

On account of a sustained revenue collection and a targeted expenditure policy by the Government of India, the fiscal deficit for April to November 2021 has been contained at 46.2 per cent of BE which is nearly one third of the proportion reached during the same period of the previous two years (135.1 per cent of BE in April-November 2020 and 114.8 per cent of BE in April-November 2019). The fiscal deficit budgeted in the current year was more realistic as it brought in several off-budget items to within the budget allocation such as the food subsidy requirements of FCI. With the enhanced borrowings on account of COVID-19, the Central Government debt has gone up from 49.1 per cent of GDP in 2019-20 to 59.3 per cent of GDP in 2020-21, but is expected to follow a declining trajectory with the recovery of the economy. The General Government finances are also expected to witness a consolidation during 2021-22, after the uptick in deficit and debt indicators during the pandemic year 2020-21.

INTRODUCTION

2.1 Over the last two years, fiscal policy has remained a significant tool for addressing the economic fallout of the pandemic. Government of India has adopted a calibrated fiscal policy approach to the pandemic, which had the flexibility of adapting to an evolving situation in order to support the vulnerable sections of society/firms and enable a resilient recovery. India's unique agile policy response differed from the waterfall strategy[1] of introducing front-loaded stimulus packages, adopted by most other countries in 2020. Such an adaptive approach has now been widely accepted in the policy circles (IMF Fiscal Monitor October 2021).

2.2 This chapter reviews the fiscal developments in India in the aftermath of the pandemic outbreak. It begins with fiscal policy strategy and performance of the fiscal parameters in the current year 2021-22, followed by a detailed analysis of the medium to long-term trends in Central, State and General Government finances. The chapter concludes with a discussion on policy measures to enhance efficiency of Government spending.

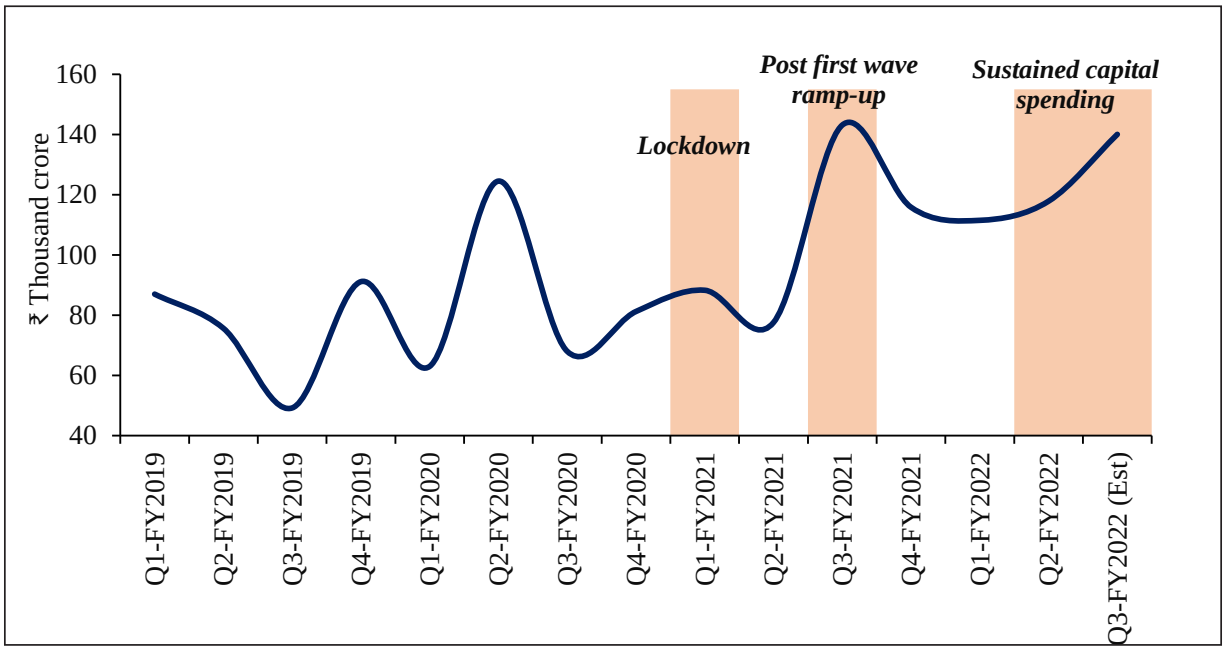
[1]Waterfall strategy as explained in chapter 1 of the Survey

FISCAL POLICY STRATEGY IN THE AFTERMATH OF THE PANDEMIC OUTBREAK

2.3 The agile fiscal policy response adopted by Government of India encompassed a change in mix of the stimulus measures amidst an uncertain evolution of the pandemic situation. In the initial phase of the pandemic, the fiscal policy focused on building safety-nets for the poor and vulnerable sections of society to hedge against the worst-case outcomes. Stimulus measures such as direct benefit transfers to the vulnerable sections, emergency credit to the small businesses, and the world's largest food subsidy programme targeting 80.96 crore beneficiaries enabled the creation of safety-nets, by ensuring that the essentials are taken care of. This was followed by a series of stimulus packages spread throughout the year 2020-21, driven by a Bayesian updating of information as the situation evolved. With the restoration of economic activities, the fiscal response focused on stimulating demand in the economy. During this phase of economic recovery, the stimulus mix included investment boosting measures like Production Linked Incentives (PLI), steps to encourage investment in infrastructure sector and enhancing capital expenditure by the Central and state Governments (**Figure 2 A to 2 D**).

2.4 This enhanced focus on capital expenditure in the second half of the year 2020-21 is reflective of the responsive fiscal policy which Government of India has adopted against COVID-19. Due to movement restrictions in containment zones, and unwillingness or inability of contractors and workers to carry out works, the quarterly capital expenditure was restrained during the first two quarters of 2020-21. With the easing of movement and health-related restrictions in Q3 of 2020-21, the capital spending was pushed for encouraging expenditure in sectors with the most positive effect on the economy. The focus on capital spending has been sustained during the current fiscal, as the capital expenditure shows an increasing trend during the first three quarters of 2021-22 **(Figure 1)**.

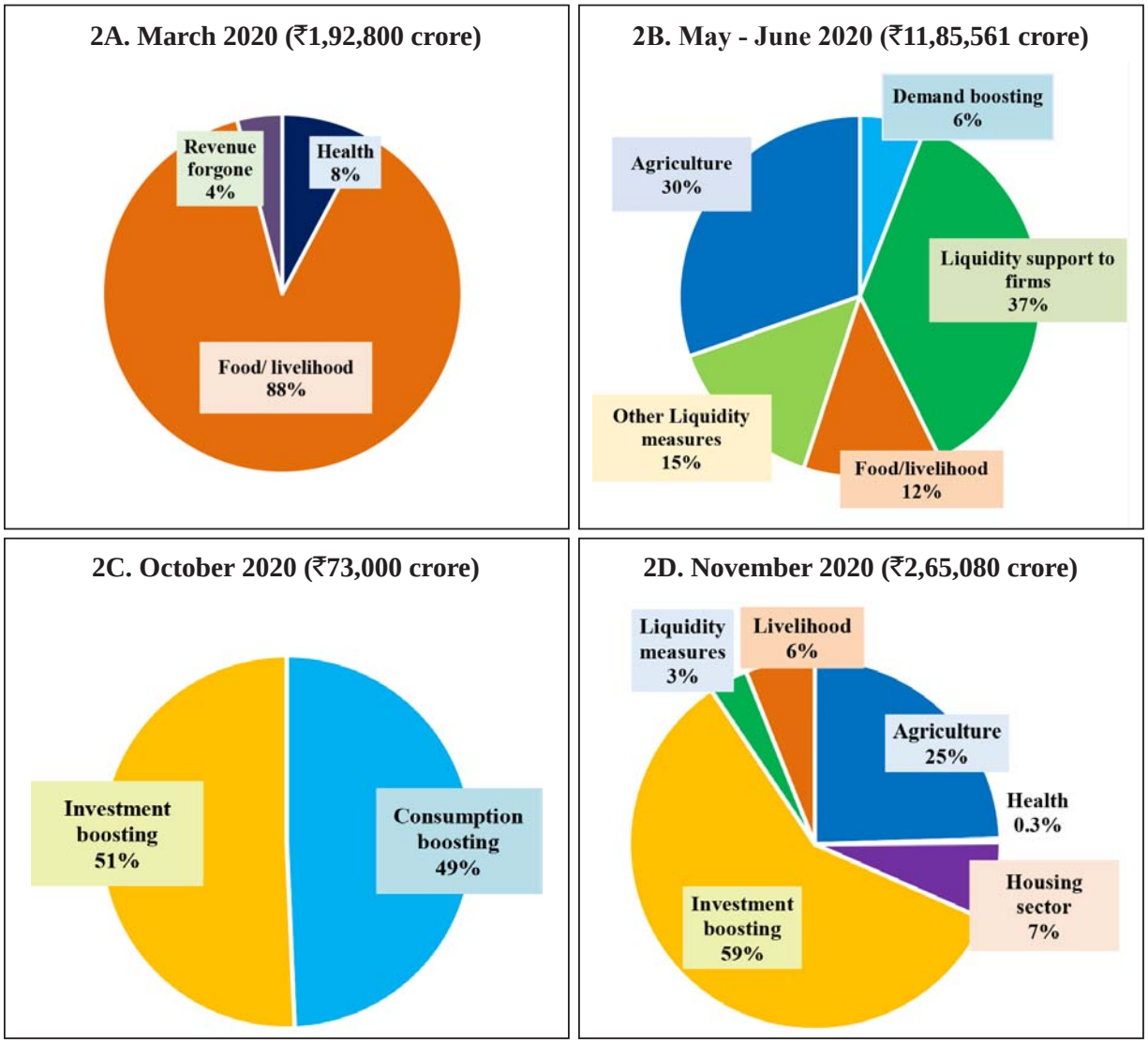
Figure 1: Trends in quarterly capital expenditure



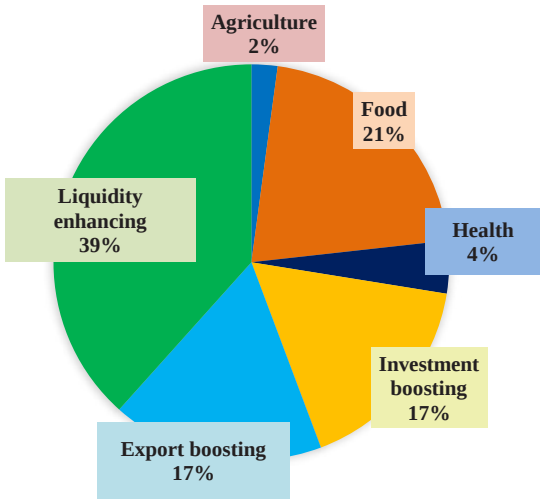
Source: CGA Monthly Accounts
Note: The estimate for Q3 FY2021-22 uses flash figures for Dec 2021.

2.5 Building on the same approach, the Union Budget 2021-22 had enhanced the budget outlays for the more productive capital expenditure. The Government budgeted for a 34.5 per cent growth in capital expenditure over 2020-21 BE – with emphasis on railways, roads, urban transport, power, telecom, textiles and affordable housing amid continued focus on the National Infrastructure Pipeline. The National Infrastructure Pipeline covering 6835 projects was expanded to 7400 projects in Budget 2021-22. In order to unlock the domestic manufacturing potential across sectors, such as renewable energy, heavy industry, agriculture, automotive and textiles, Budget 2021-22 launched PLI schemes for 13 sectors, with an outlay of ₹1.97 lakh crore, for a period of 5 years starting from 2021-22. All these initiatives are expected to collectively generate employment and boost output in the medium to long term through multiplier-effects. The stimulus measures announced during the year 2021-22 have continued the emphasis on liquidity enhancing and investment boosting measures such as the PLI Scheme, credit guarantee schemes and export boosting initiatives to support the reviving economy, apart from providing free food grains to the poor (**Figure 2E**). The details may be seen at **Box 1**. In line with the agile approach, this mix can be changed again as per the requirement of the evolving situation.

Figure 2: Changing mix of stimulus announcements in 2020-21 and 2021-22



2E. June to December 2021 (₹6,97,338 crore)



Source: PIB
Note: Details of stimulus announcements from June to December 2021 may be seen at Box 1.

Box 1: STIMULUS ANNOUNCEMENTS DURING 2021-22

In order to reduce the impact of the shock caused by the COVID-19 second wave and support the recovering economy, Government of India announced additional relief measures in 2021-22 which have been listed in the table below. These measures were targeted towards providing economic relief to the vulnerable people and sectors, strengthening the health system, and providing impetus to growth and employment.

Details of the measures	Amount (₹ Crore)
June 2021 (₹6.29 lakh crore)	
Stimulus package for COVID-19 relief	**6,28,993**
Loan Guarantee Scheme for COVID-19 affected sectors	1,10,000
Emergency Credit Line Guarantee Scheme (ECLGS)	1,50,000
Credit Guarantee Scheme for Micro Finance institutions	7,500
Scheme for tourist guides/stakeholders	-
Free one month tourist visa to 5 lakh tourists	100
Extension of Atma Nirbhar Bharat Rozgar Yojana	-
Additional subsidy for DAP & P&K fertilizers	14,775
Free food grains under PMGKY (May to November, 2021)	93,869
New scheme for public health	15,000
Release of climate resilient special traits varieties	-

Revival of North Eastern Regional Agricultural Marketing Corporation (NERAMAC)	77
Boost for project exports through NEIA	33,000
Boost to export insurance cover	88,000
Broadband to each village through BharatNet PPP Model	19,041
Extension of tenure of PLI scheme for large scale electronic manufacturing	
Reform based result linked power distribution scheme (Budget announcement)	97,631
July 2021 (₹23,123 crore)	
India COVID-19 Emergency Response & Health System preparedness package: Phase-II	23,123 *(Centre Share-₹15,000 cr; State Share-₹8,123 cr)*
December 2021(₹53,344 crore)	
Extension of PM Garib Kalyan Ann Yojana (December 2021- March 2022)	53344.5

Source: PIB

PERFORMANCE OF FISCAL INDICATORS DURING 2021-22

2.6 This section analyses the performance of fiscal indicators and their components for the period April to November 2021. The data on Government accounts for April to November 2021, released by the Controller General of Accounts, show that the fiscal deficit of the Central Government at end November 2021 stood at 46.2 per cent of the BE compared to 135.1 per cent during the same period in 2020-21 and 114.8 per cent during the same period in 2019-20 (**Figure 4).** During this period both fiscal deficit and primary deficit stood at levels much below the corresponding levels in the previous two years. The primary deficit during the period April to November 2021 turned up at nearly half of the level it had reached during April to November 2019 (**Figure 3**).

Figure 3: Trends in Fiscal deficit and primary deficit

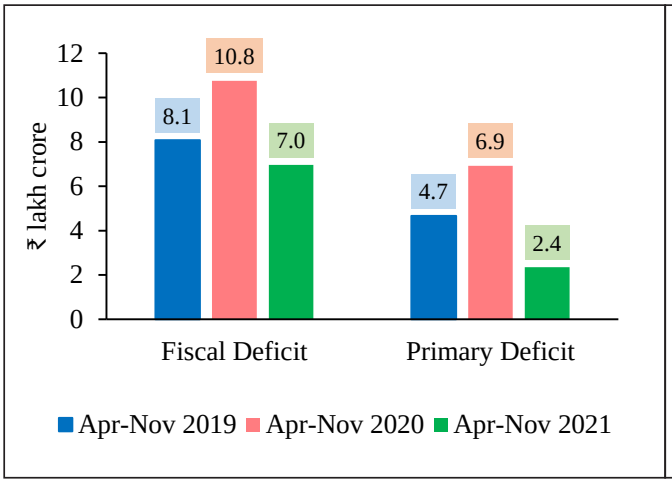
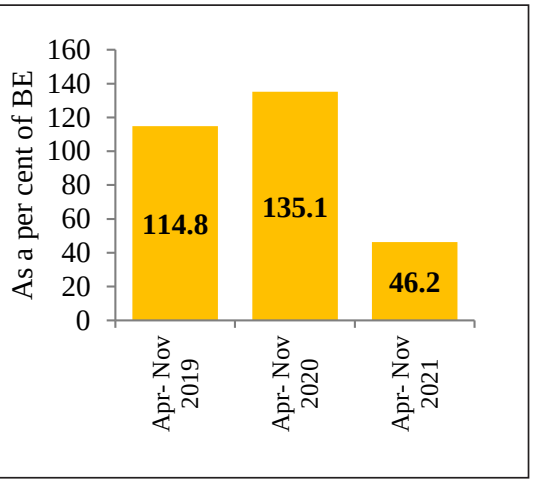


Figure 4: Fiscal deficit as a per cent of Budget estimate



Source: CGA Monthly Accounts

Table 1: Provisional Outcome for 2021-22 (April to November 2021)

		2021-22 BE	In ₹ lakh crore		Percentage of respective BE		YoY Growth (per cent)		
			2020-21	2021-22	2020-21	2021-22	FY21 over FY20	FY22 over FY21	FY22 over FY20
1	Revenue Receipts	17.88	8.13	13.59	40.2	76.0	-17.3	67.2	38.2
2	Gross tax revenue	22.17	10.26	15.42	42.3	69.5	-12.6	50.3	31.3
3	Assignment to States	6.66	3.34	4.03	42.6	60.5	-20.7	20.4	-4.5
4	Tax Revenue (net to Centre)	15.45	6.88	11.35	42.1	73.5	-8.3	64.9	51.2
5	Non Tax Revenue	2.43	1.24	2.23	32.3	91.8	-46.6	79.5	-4.1
6	Non Debt Capital Receipts	1.88	0.18	0.21	8.1	11.0	-37.5	14.1	-28.6
7	Non Debt receipts	19.76	8.31	13.79	37.0	69.8	-17.9	66.0	36.2
8	Total Expenditure	34.83	19.06	20.75	62.7	59.6	4.7	8.8	14.0
9	Revenue Expenditure	29.29	16.65	18.01	63.3	61.5	3.7	8.2	12.1
10	Capital Expenditure	5.54	2.41	2.74	58.5	49.4	12.8	13.5	28.0
11	Revenue Deficit	11.41	8.52	4.43	139.9	38.8	36.8	-48.1	-28.9
12	Fiscal Deficit	15.07	10.76	6.96	135.1	46.2	33.1	-35.3	-13.9
13	Primary Deficit	6.97	6.92	2.35	785.3	33.8	48.5	-66.0	-49.5

Source: CGA Monthly Accounts; BE: Budget Estimates

Revenue collection

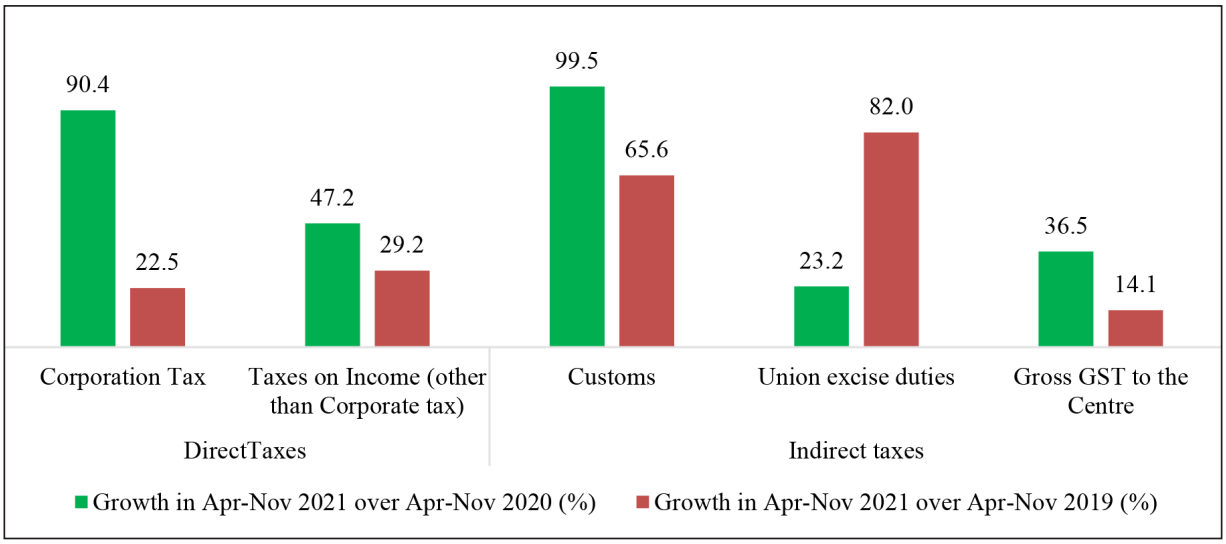
2.7 The period April to November 2021 witnessed a strengthening of fiscal position by the Central Government, which was led by buoyant revenue collection and expenditure allocations targeted towards capital expenditure. Revenue receipts have grown at a much higher pace during the current financial year (April to November 2021) compared to the corresponding periods during the last two years (**Table 1**). This performance is attributable to considerable growth in both tax and non-tax revenue.

2.8 Net tax revenue to the Centre, which was envisaged to grow at 8.5 per cent in 2021-22 BE relative to 2020-21 PA, grew at 64.9 per cent during April to November 2021 over April to November 2020 and at 51.2 per cent over April to November 2019 (**Table 1**). This improved performance in tax revenues is due to high growth shown by all major direct and indirect taxes with respect to the same period of the last two years. Within direct taxes, personal income tax has grown at 47.2 per cent over April-November 2020 and at 29.2 per cent over the April-November

2019. The corporate income tax registered a growth of 90.4 per cent over April-November 2020 and 22.5 per cent over April-November 2019 (**Figure 5 and 6**).

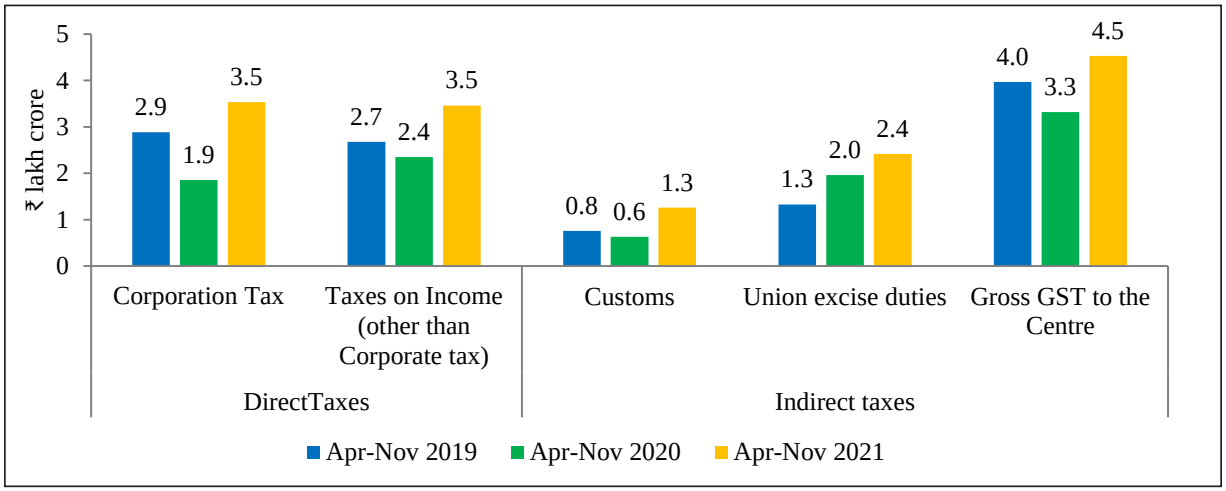
2.9 Among the various factors which may have led to such an increase in corporate tax collection, improved profitability of the corporates, formalization of the economy and improved compliance due to tax reforms are noteworthy. As per RBI, the gross profits of Listed Non-Government Non-Financial Companies(sample) had grown by 132.5 per cent for manufacturing sector and 21.5 per cent for IT sector during Q1 of 2021-22. In the following quarter Q2 of 2021-22, gross profits grew by 39.7 per cent for manufacturing sector and 18.4 per cent for IT sector. In addition, various tax administration and policy reforms introduced by the Government of India over the past few years (details may be seen at Annex) have also led to the improved compliance. Data available at the time of writing this chapter was not adequate to meaningfully separate out the net impact of these factors.

Figure 5: Growth in major direct and indirect taxes during April-November 2021



Source: CGA Monthly Accounts

Figure 6: Trends in major direct and indirect taxes during April-November period



Source: CGA Monthly Accounts

2.10 The indirect tax receipts have registered a YoY growth of 38.6 per cent in the first eight months of this fiscal year. The rise in imports of goods and services ensued due to the recovery in both manufacturing sector and consumption demand, have led to a rise in customs collection. The revenue collection from customs during April to November 2021 has registered a growth of almost 100 per cent over April to November 2020 and over 65 per cent compared to April to November 2019.

2.11 The revenue from excise duties has registered a YoY growth of 23.2 per cent during April-November 2021. The Government had raised the excise duty on petrol and diesel to garner revenues during the year 2020-21, when the collection of other direct and indirect taxes was adversely impacted by COVID-19 and low global petroleum prices created some elbow-room for raising taxes on petroleum. The revenue from excise duty registered an YoY growth of more than 60 per cent in 2020-21 PA. However by the end of November 2021, when the global oil prices had increased, other tax revenue sources had recovered and inflationary pressures were building up in the economy, the government changed its' policy as per the requirement of the situation, and the Central excise duty on petrol and diesel was reduced. Such a responsive feedback-based policy making by the Government is imperative for ensuring efficient management of limited fiscal resources in the economy. The Revised Estimates would give more clarity on the impact of excise duty cut on the tax revenue during the current year.

2.12 With the revival of the economy, the Goods and Services Tax has emerged as a buoyant source of revenue for both the Centre and the States. The GST collections for the Centre were 61.4 per cent of BE during April to November 2021. Gross GST collections, Centre and States taken together, were ₹10.74 lakh crore during April to December 2021, which is an increase of 61.5 per cent over April to December 2020 and 33.7 per cent over April to December 2019. Notably, the average monthly gross GST collection for the third quarter of the current year was ₹ 1.30 lakh crore, higher than the average monthly collection of ₹ 1.10 lakh crore and ₹ 1.15 lakh crore in the first and second quarters respectively.

2.13 After falling during the phase of nationwide lockdown in 2020-21 and during the second COVID-19 wave in India, there was a quick recovery in monthly GST collections. **Figure 7** shows that the impact of the second wave of COVID-19 on GST collections was much more muted than the impact of nationwide lockdown during the first wave. Over the last 4 years, GST revenues have steadily grown and the year-average of monthly GST collection has increased from 0.9 lakh crore in 2017-18 to 1.19 lakh crore in 2021-22 (upto December) (**Figure 8**). The improvement in GST collections has been due to the combined effect of the rapid economic recovery post pandemic, the nation-wide drive against GST evaders and fake bills along with many systemic changes introduced recently, and various rate rationalization measures undertaken by the GST Council to correct inverted duty structure.

Figure 7: Buoyant GST collections during 2021-22

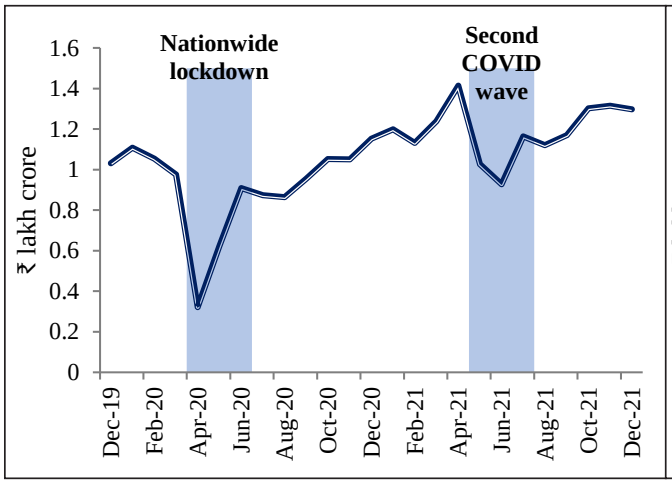
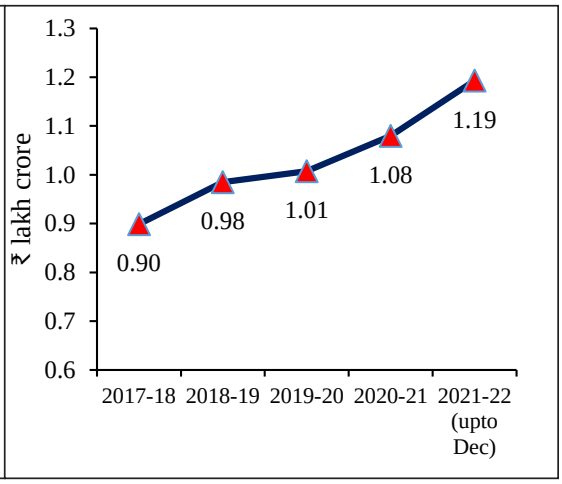


Figure 8: Rising year-average of monthly Gross GST collections



Source: Department of Revenue

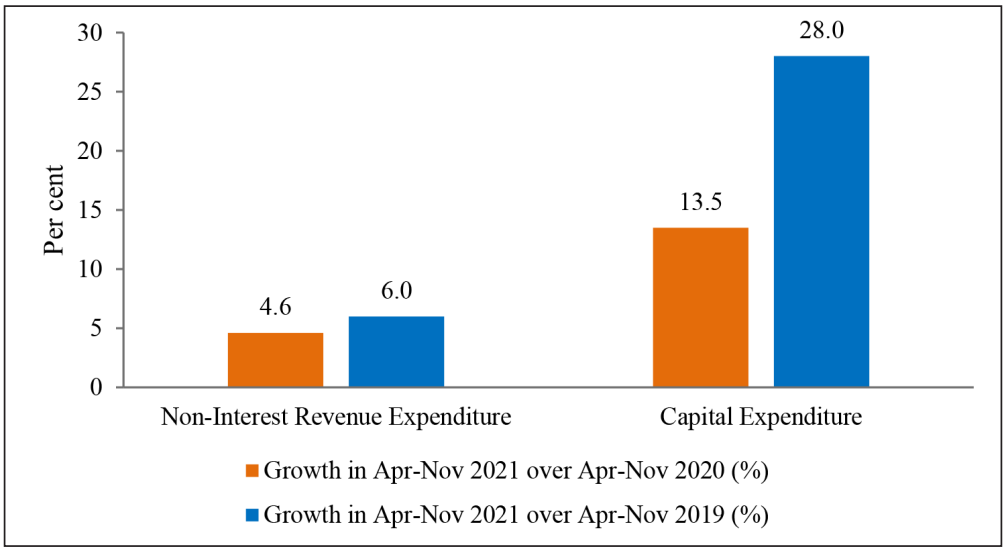
2.14 The non-tax revenue collections up to November 2021 registered an YoY increase of 79.5 per cent. This increase was driven by dividends and profits, which stood at ₹1.28 lakh crore against BE of ₹1.04 lakh crore. The key component of dividends and profits during this period was ₹ 0.99 lakh crore surplus transfer from RBI to the Central Government.

2.15 The non-debt capital receipts include recovery of loans and disinvestment receipts. The Budget 2021-22 had envisaged to mobilise ₹ 1.75 lakh crore from disinvestment proceeds this year. So far, the government has been able to raise ₹ 9330 crore (as on 24 January 2022) from disinvestment. The recently introduced New Public Sector Enterprise Policy and Asset Monetisation Strategy by the Government reaffirm its commitment towards privatization and strategic disinvestment of Public Sector Enterprises. The privatisation of Air India has been particularly important, not only in terms of garnering disinvestment proceeds but also for boosting the privatisation drive. The details of disinvestment during 2021-22 and new initiatives being undertaken by Department of Investment and Public Asset Management (DIPAM) are given in **Box 2**.

Expenditure

2.16 The expenditure policy of the government during 2021-22 has been characterized by restructuring and prioritization of spending in sectors which have a long-term impact on output. The total expenditure of the Government increased by 8.8 per cent during April to November 2021 and stood at 59.6 per cent of Budget Estimate. While the revenue expenditure has grown by 8.2 per cent during the first eight months of 2021-22 over the same period in 2020-21, the non- interest revenue expenditure grew by 4.6 per cent over April to November 2020 **(Figure 9)**.

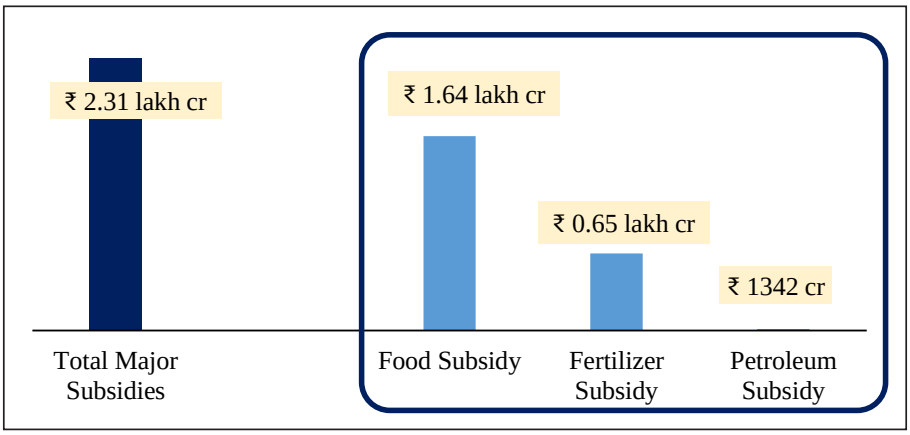
Figure 9: Growth in expenditure components during April to November 2021



Source: CGA Monthly Accounts

2.17 During April to November 2021, the expenditure on major subsidies stood at ₹ 2.31 lakh crore. The components of expenditure on major subsidies may be seen in **Figure 10**. Food subsidy being the major component of total subsidies was at two third of its BE *i.e.* ₹ 1.64 lakh crore during the first eight months of 2021-22. The implementation of Pradhan Mantri Garib Kalyan Ann Yojana – Phase III (May to June 2021), Phase IV (July to November 2021) and Phase V (December to March 2022), announced during 2021-22, would entail an estimated food subsidy requirement of ₹ 1.47 lakh crore. This scheme provides free food grains to beneficiaries over and above the regular monthly NFSA food-grains.

Figure 10: Expenditure on Subsidies during April to November 2021

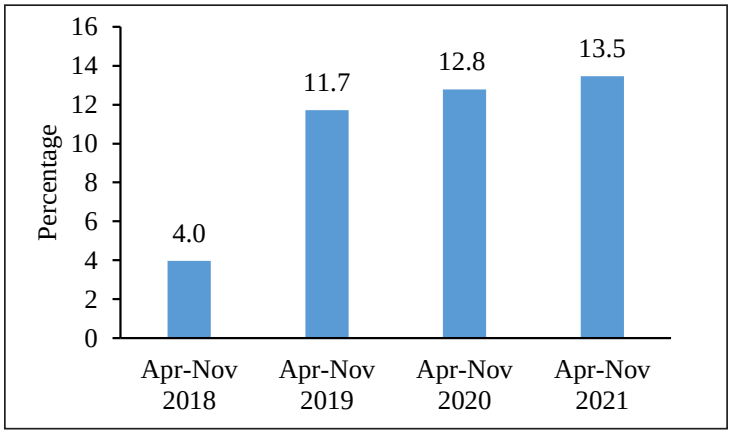


Source: CGA Monthly Accounts

2.18 Emphasis on capital expenditure has been the highlight of expenditure policy during the current fiscal. During April to November 2021, capital expenditure registered a growth of 13.5 per cent over April to November 2020 and 28 per cent over April to November 2019 **(Figure 9)**. As depicted in **Figure 11**, this growth is higher than the YoY capital expenditure growth recorded in the last few years during the same period. It is noteworthy to mention that there is a strong seasonality in capital expenditure by the Government. A large proportion of

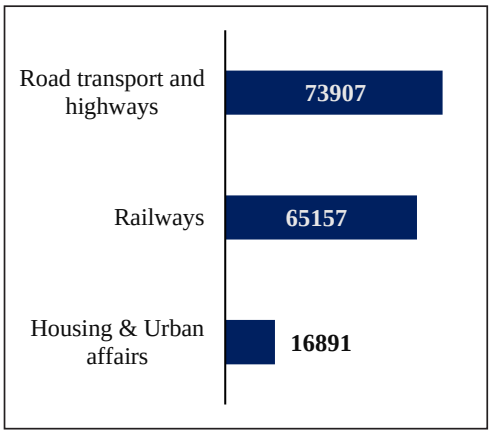
capital spending takes place in the second half of the year, which is not being captured with the available data. The focus of capital expenditure from April to November 2021 has been directed towards infrastructure-intensive sectors like roads and highways, railways, and housing and urban affairs (**Figure 12**). In addition, the Centre has also put in place several incentives to boost the capital expenditure by the States (discussed in **Box 3**).

Figure 11: YoY growth in Capital Expenditure during April to November over the years



Source: CGA Monthly Accounts

Figure 12: Emphasis sectors for Capital expenditure (April to November 2021) (In ₹ crore)



Source: CGA Monthly Accounts

2.19 Based on the above analysis, it may be seen that the agile fiscal policy approach adopted by the Government, coupled with the buoyant revenue collection received so far this year, has created headroom for taking up additional fiscal policy interventions based on the need of the evolving situation. The targeted focus on capital expenditure, with its resulting multiplier effects, will be vital in sustaining the economic growth. As the economy grows further, the revenue collection from all the sources is expected to be more robust, which will help to strengthen the fiscal position on one hand, and create fiscal space on the other. Thus, it is expected that reaching the budget estimate for fiscal deficit during 2021-22 will not be a concern for the Central Government. A robust economic growth path and various tax policy and administration reforms undertaken over the last few years will be fundamental in sustaining the buoyant revenues in the medium term, and thus, be on track with the fiscal path outlined by the Medium-Term Fiscal Policy Statement.

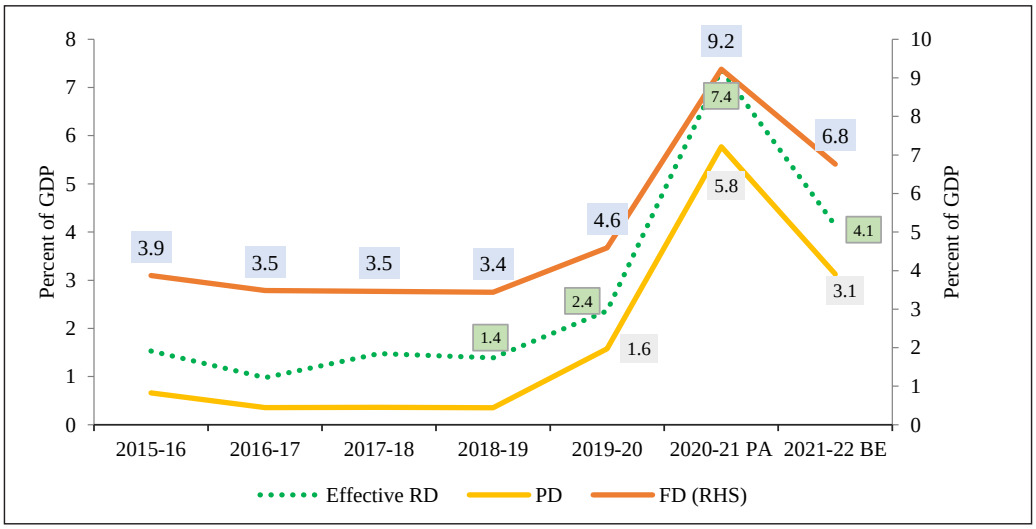
LONG-TERM TRENDS IN GOVERNMENT FINANCES: CENTRE, STATES AND GENERAL GOVERNMENT

Central Government Finances

2.20 During the year 2020-21, the shortfall in revenue collection owing to the interruption in economic activity and the additional expenditure requirements to mitigate the fallout of the pandemic on vulnerable people, small businesses, and the economy in general, created immense pressure on the available limited fiscal resources. As a result, the budgeted fiscal deficit for 2020-21 was revised from 3.5 per cent in BE to 9.5 per cent in RE. The fiscal deficit for 2020-21 Provisional Actuals stood at 9.2 per cent of GDP i.e. lower than RE **(Figure 13)**. The Medium-Term Fiscal Policy (MTFP) Statement presented with Budget 2021-22 envisaged a fiscal deficit

target of 6.8 per cent of GDP for 2021-22. This reduction in deficit during the current year was budgeted on account of reduction in expenditure from 17.7 per cent of GDP in 2020-21 RE to 15.6 per cent in 2021-22 BE; and a budgeted marginal increase in gross tax revenues to the tune of 0.1 per cent of GDP. The data on Government accounts for April to November 2021, released by the Controller General of Accounts, shows that the Government is well on track for achieving the budget estimate for fiscal deficit in 2021-22.

Figure 13: Trends in Deficits



Source: Union Budget Documents & CGA
BE: Budget Estimate, PA: Provisional Actuals
FD: Fiscal Deficit; RD: Revenue Deficit; PD: Primary Deficit

2.21 The long-term trends in major fiscal indicators of the Central Government and their growth rates are presented in **Table 2** and **Table 3**, respectively. This section analyses these trends in detail.

Table 2: Central Government's Fiscal Indicators

	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21 PA	2021-22 BE
	(in ₹ lakh crore; Figures in parenthesis are as a per cent of GDP)						
Revenue receipts	11.95 (8.7)	13.74 (8.9)	14.35 (8.4)	15.53 (8.2)	16.84 (8.3)	16.32 (8.3)	17.88 (8.0)
Gross tax revenue	14.56 (10.6)	17.16 (11.2)	19.19 (11.2)	20.8 (11.0)	20.1 (9.9)	20.25 (10.3)	22.17 (9.9)
Net tax revenue	9.44 (6.9)	11.01 (7.2)	12.42 (7.3)	13.17 (6.9)	13.57 (6.7)	14.24 (7.2)	15.45 (6.9)
Non-tax revenue	2.51 (1.8)	2.73 (1.8)	1.93 (1.1)	2.36 (1.2)	3.27 (1.6)	2.08 (1.1)	2.43 (1.1)

Non-debt capital receipts*	0.63	0.65	1.16	1.13	0.69	0.58	1.88
	(0.5)	(0.4)	(0.7)	(0.6)	(0.3)	(0.3)	(0.8)
Non-debt receipts	12.58	14.40	15.51	16.66	17.53	16.90	19.76
	(9.1)	(9.4)	(9.1)	(8.8)	(8.6)	(8.6)	(8.9)
Total expenditure	17.91	19.75	21.42	23.15	26.86	35.11	34.83
	(13.0)	(12.9)	(12.5)	(12.2)	(13.2)	(17.8)	(15.6)
Revenue expenditure	15.38	16.91	18.79	20.07	23.51	30.86	29.29
	(11.2)	(11.0)	(11.0)	(10.6)	(11.6)	(15.6)	(13.1)
Capital expenditure	2.53	2.85	2.63	3.08	3.35	4.25	5.54
	(1.8)	(1.9)	(1.5)	(1.6)	(1.6)	(2.2)	(2.5)
Fiscal deficit	5.33	5.36	5.91	6.49	9.34	18.21	15.07
	(3.9)	(3.5)	(3.5)	(3.4)	(4.6)	(9.2)	(6.8)
Revenue deficit	3.43	3.16	4.44	4.54	6.67	14.54	11.41
	(2.5)	(2.1)	(2.6)	(2.4)	(3.3)	(7.4)	(5.1)
Primary deficit	0.91	0.55	0.62	0.67	3.22	11.39	6.97
	(0.7)	(0.4)	(0.4)	(0.4)	(1.6)	(5.8)	(3.1)
Memo Item							
GDP at Market Price	137.72	153.62	170.95	189.71	203.51	197.46	222.87

Source: Union Budget Documents & CGA
BE: Budget Estimate, PA: Provisional Actuals
*includes disinvestment proceeds

Table 3: Growth rate of Central Government's Fiscal Indicators (in per cent)

ITEMS	2016-17	2017-18	2018-19	2019-20	2020-21 PA*	2021-22 BE^
Revenue receipts	15.0	4.4	8.2	8.4	-3.1	9.6
Gross tax revenue	17.9	11.8	8.4	-3.4	0.7	9.5
Net tax revenue	16.7	12.8	6.0	3.0	4.9	8.5
Non-tax revenue	8.6	-29.4	22.3	38.8	-36.4	16.8
Non-debt capital receipts	3.8	77.0	-2.5	-39.2	-16.0	226.2
Total non-debt receipt	14.4	7.7	7.4	5.2	-3.6	17.0
Total expenditure	10.3	8.4	8.1	16.0	30.7	-0.8
Revenue expenditure	9.9	11.1	6.8	17.1	31.3	-5.1
Capital expenditure	12.5	-7.5	16.9	9.1	26.5	30.5

Source: Union Budget Documents & CGA
BE: Budget Estimate, PA: Provisional Actuals
* Rate of growth vis-à-vis 2019-20 actual;
^ Rate of growth vis-à-vis 2020-21 PA

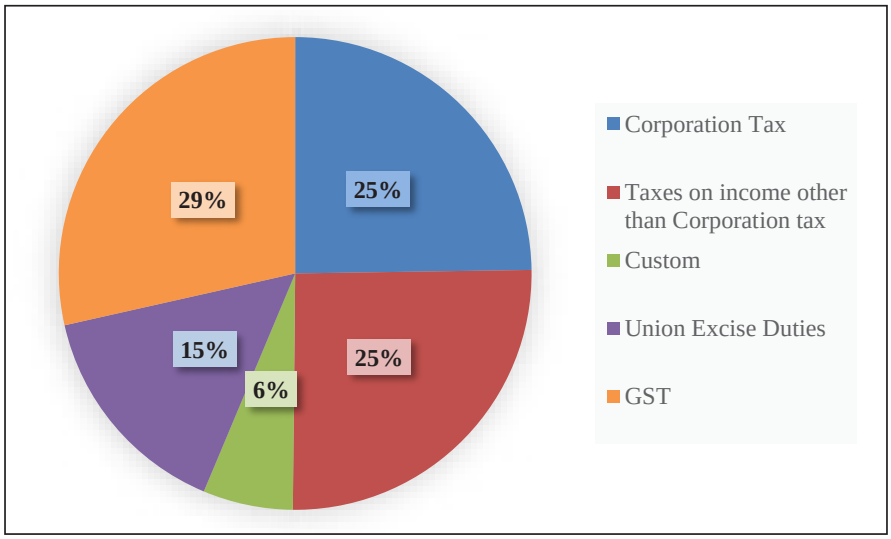
Trends in Receipts

2.22 Central Government receipts can broadly be divided into non-debt and debt receipts. The non-debt receipts comprise of tax revenue, non-tax revenue, recovery of loans, and disinvestment receipts. Debt receipts mostly consist of market borrowings and other liabilities, which the government is obliged to repay in the future. The Budget 2021-22 targeted significantly high growth in non-debt receipts of the Central Government, which was driven by robust growth in all its' components (refer to **Table 3**).

Tax Revenue

2.23 The Provisional Actual figures released by the Controller General of Accounts for 2020-21 show that the gross tax revenue grew by 0.7 per cent (YoY) during 2020-21. The muted tax collections were driven by 11.7 per cent (YoY) decline in direct taxes, which was offset by 12.6 per cent (YoY) growth in indirect taxes. However, Budget 2021-22 envisaged a growth of 16.7 per cent in gross tax revenue (GTR) over the revised estimates (RE) of 2020-21. GTR was estimated at ₹ 22.17 lakh crore for 2021-22 BE, which was 9.9 per cent of the GDP. The budgeted growth in GTR was estimated to be led by 22.4 per cent growth in direct taxes and 11.4 per cent growth in indirect taxes over the revised estimates of 2020-21. Broadly, 50 per cent of GTR was estimated to accrue from direct taxes and the remaining 50 per cent from indirect taxes. The contribution of different taxes in GTR for 2021-22 BE is shown in **Figure 14**.

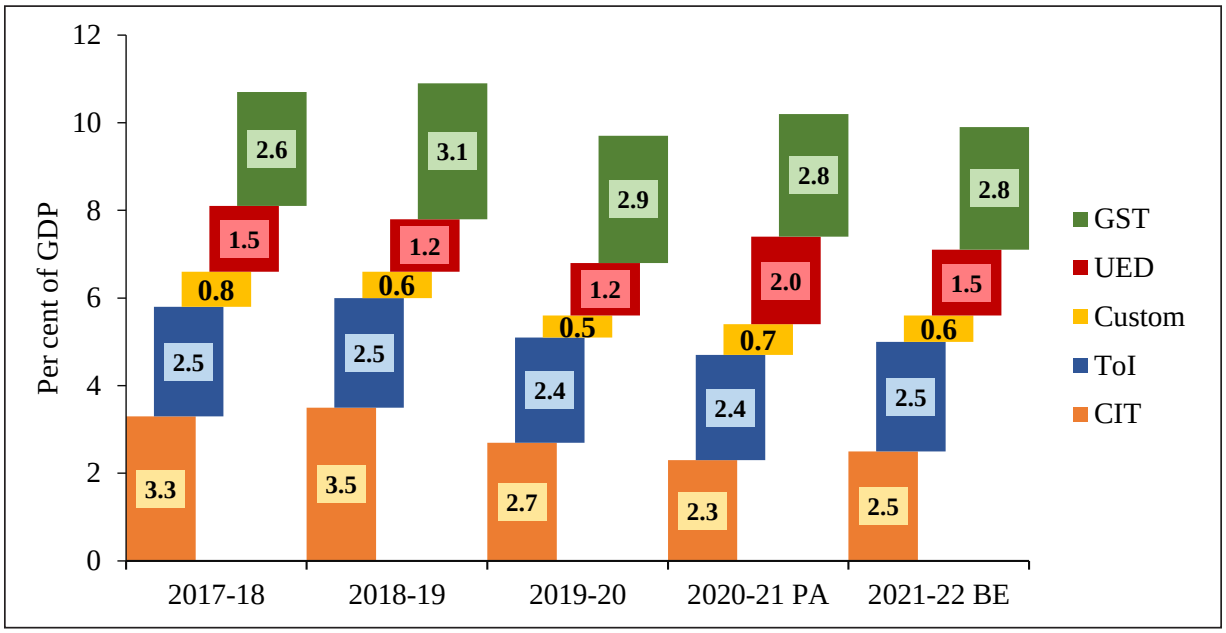
Figure 14: Composition of taxes in Gross Tax Revenue in 2021 -22 BE



Source: Union Budget Documents

2.24 The trend in major taxes in relation to GDP, depicted in **Figure 15**, clearly show the muted collections from direct tax receipts, particularly the corporate tax since 2019-20. This is due to the moderation in growth of the economy during this period and implementation of structural reforms like corporate tax rate cut. During the current fiscal year, the corporate tax collections have been buoyant, registering an above 90 per cent growth during April to November 2021 over April to November 2020.

Figure 15: Taxes as a per cent of GDP



Source: Union Budget Documents & CGA

BE: Budget Estimate, PA: Provisional Actual, CIT: Corporation Tax, ToI: Taxes on Income other than Corporation Tax (includes STT), UED: Union Excise Duties, GST: Goods and Services Tax

Non-Tax Revenue

2.25 Non-tax revenue consists mainly of interest receipts on loans to States and Union Territories, dividends and profits from Public Sector Enterprises including surplus of Reserve Bank of India transferred to Government of India, and external grants and receipts for services provided by the Central Government. These services include fiscal services like currency, coinage and mint, general services such as Public Service Commission and police, social services like education and health, and economic services like irrigation, transportation and communication. The Budget for 2021-22 envisaged generation of ₹ 2.43 lakh crore of non-tax revenue, 16.8 per cent higher than 2020-21 PA. (refer **Table 4**).

Table 4- Trends in Non-tax Revenue of Central Government

	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21 PA	2021-22 BE
							(in ₹ lakh crore)
Interest receipts	0.25	0.16	0.14	0.12	0.12	0.17	0.12
Dividends & Profits	1.12	1.23	0.91	1.13	1.86	0.97	1.04
External Grants	0.02	0.01	0.04	0.01	0.00	0.02	0.01
Others	1.12	1.32	0.84	1.07	1.27	0.92	1.25
Non-tax Revenue	2.51	2.73	1.93	2.36	3.27	2.08	2.43

Source: Union Budget Documents & CGA

Non-Debt Capital Receipts

2.26 Non-debt capital receipts mainly consist of recovery of loans and advances, and disinvestment receipts. The share of recovery of loans has declined over the years following disintermediation of loan portion of Central assistance to States consequent to the recommendation of the Twelfth Finance Commission, and States allowed to borrow directly from the market. The Budget for 2021-22 has envisaged generation of ₹ 1.88 lakh crore of non-debt capital receipts, comprising ₹ 1.75 lakh crore of disinvestment receipts. In order to minimize the presence of the Government in the PSEs across all sectors of the economy, the Government has adopted a new disinvestment policy for Atmanirbhar Bharat in February 2021. The evolution of the disinvestment policy of the Government may be seen at **Box 2**.

Box 2: Evolution of the Disinvestment Policy of the Government of India

With the passing of the Constitution (First Amendment) Act, 1951, nationalisation of private firms became a standard policy tool by the Government. The Act stated that 'the citizen's right to practise any profession or to carry on any occupation, trade or business conferred by article 19(1)(g) is subject to reasonable restrictions which the laws of the State may impose "in the interests of general public"'. The Act allowed for nationalisation or trading by the state in any business.

Soon under the Air Corporations Act, 1953, the Government nationalised nine airlines—Air India, Air Services of India, Airways (India), Bharat Airways, Deccan Airways, Himalayan Aviation, Indian National Airways, Kalinga Airlines, and Air India International—and brought them under two PSEs, Indian Airlines, and Air India International. This was followed by nationalisation of life insurance in 1956 through the Life Insurance Corporation Act 1956, whereby 154 Indian insurers, 16 non-Indian insurers, and 75 provident societies were nationalised into Life Insurance Corporation of India (LIC). Through the General Insurance Business (Nationalisation) Act, 1972, the general insurance business of 55 Indian companies and the 52 foreign insurers was nationalised. Further in the banking system, the government nationalised 14 banks in 1969 through the Banking Companies (Acquisition and Transfer of Undertakings) Act, 1970, followed up by a second round of bank nationalisation in 1980, through which another six banks were nationalised. Coal mines were also nationalised during the period 1971-1975. Nevertheless, the issue of nationalisation has always been a highly debated issue, to the extent that in the year 1958, the then Finance Minister, Mr. TT Krishnamachari, had to resign owing to controversies around nationalisation of LIC (Mundhra Scandal, 1958).

After the 1991 reforms, there was a transition in thinking about public and private sector. The term 'disinvestment' was used first time in Interim Budget 1991. However, the policy on disinvestment gathered steam under the Government of PM Vajpayee, when a new Department of Disinvestment was created in 1999, which became a full Ministry in 2001. It was during this period that the concept of strategic sales of state-owned companies became a part of policy debate. This government stakes were sold in as many as 12 public sector companies during this tenure, including Maruti Udyog, Hindustan Zinc, Bharat Aluminum and Videsh Sanchar Nigam Limited. The process of disinvestment continued intermittently over the next decade 2004-2014, until the recent emphasis in this direction over the last five years.

After 2014, the disinvestment policy was renewed with stake sales in PSEs such as Hindustan Petroleum Corporation Limited (HPCL), Rural Electrification Corporation Limited (REC), Dredging Corporation of India Limited (DCIL), Hospital Services Consultancy Corporation Limited (HSCC), National Projects Construction Corporation Limited (NPCC), THDC India Limited and North Eastern Electric Power Corporation Limited; and successful listing of PSEs like IRCTC, HUDCO, Cochin Shipyard Ltd., General Insurance Corporation, New India Assurance Company Ltd., Mazagon Dock Shipbuilders Ltd. (MDL) and RailTel on the stock market. In order to realize the mission of New, Self-reliant India, there was a need to redefine public sector participation in business enterprises and to encourage private sector participation in all sectors.

Against this backdrop, New Public Sector Enterprise ("PSE") Policy for Atmanirbhar Bharat was notified on 4th February 2021. The policy intends to minimize the presence of the Government in the PSEs across all sectors of the economy. Under the New PSE Policy, public sector commercial enterprises have been classified as Strategic and Non-Strategic sectors. Following four broad strategic sectors have been delineated based on the criteria of national security, energy security, critical infrastructure, provision of financial services and availability of important minerals- (i) Atomic Energy, Space and Defense; (ii) Transport and Telecommunication; (iii) Power, Petroleum, Coal and other minerals; and (iv) Banking, Insurance and Financial Services.

The B.E for disinvestment proceeds for the year 2021-22 was fixed at ₹1,75,000 crore. So far, Government has received ₹ 9,330 crores (as on 24 January 2022) from disinvestment of CPSEs through Offer for Sale (OFS) route and sale of shares through the stock exchange. CPSE stocks have gained traction among the investors, as reflected in the BSE CPSE index, which has risen by 40.02 per cent since January 2021 to date (24 January 2022), in comparison to the benchmark index, which rose by 23.33 per cent. Total dividend receipts from CPSEs in 2020-21 stood at ₹ 39,607 crore, which exceeds the Revised Estimate (RE) of ₹ 34,717 crore, and is more than actual dividend receipts (₹ 35,543 crore) during the previous financial year. Total dividend receipts in the current financial year (as of 24.01.2022) stand at ₹ 40,201.47 crore.

Since 2016, the government has given 'in-principle' approval for strategic disinvestment of 35 CPSEs and/or Subsidiaries/ Units/ Joint Ventures of CPSEs and IDBI Bank. During the present year, with progress on privatization of Air India, the government has crossed a significant milestone with M/s Talace Pvt Ltd, a wholly-owned subsidiary of M/s Tata Sons Pvt Ltd emerging as the successful bidder for sale of 100 per cent equity shareholding of GoI in Air India along with equity shareholding of Air India in AIXL and AISATS. Share Purchase Agreement was signed among M/s Talace Private Ltd, Air India and Ministry of Civil Aviation on 25.10.2021. This progress on privatization of Air India is particularly important, not only in terms of garnering disinvestment proceeds but also for boosting the privatisation drive.

Asset Monetization

The National Infrastructure Pipeline (NIP) envisaged a projectd infrastructure investment of ₹ 111 lakh crores during FY 2020 to FY 2025. The NIP task force report has estimated that about 15-17 per cent of this outlay is to be met through innovative and alternative initiatives such as asset monetisation, funding through a new Development Finance Institution (DFI) etc[2]. The Union Budget 2021-22 also emphasized monetization of assets as one of the three pillars for enhanced and sustainable infrastructure financing in the country.

Based on the mandate for Asset Monetisation under Union Budget 2021-22, the National Monetisation Pipeline (NMP) has been developed by NITI Aayog in consultation with infrastructure line ministries. It is envisaged to serve as an essential roadmap for the asset monetisation of various brownfield infrastructure assets across roads, railways, shipping, aviation, power, telecom, oil & gas, and warehousing sectors. The NMP will also form a baseline for the asset owning ministries for monitoring and tracking performance of the potential assets.

The NMP estimates aggregate monetisation potential of ₹ 6.0 lakh crores through core assets of the Central Government, over a four-year period, from FY 2022 to FY 2025. The top 5 sectors which capture around 83 per cent of the aggregate pipeline value include: Roads (27 per cent) followed by Railways (25 per cent), Power (15 per cent), oil & gas pipelines (8 per cent) and Telecom (6 per cent). Around 15 per cent of assets with an indicative value of ₹ 0.88 lakh crore are envisaged to be rolled out in the current financial year (FY 2021-22).

The assets and transactions identified under the NMP are expected to be rolled out through a range of instruments. These include direct contractual instruments such as public private partnership concessions and capital market instruments such as Infrastructure Investment Trusts (InvIT) among others. The choice of instrument will be determined by the sector, nature of asset, timing of transactions (including market considerations), target investor profile and the level of operational/ investment control envisaged to be retained by the asset owner etc.

While the monetization of core assets is steered by NITI Aayog, the initiative for monetization of non-core assets has been hitherto steered by the Department of Investment and Public Asset Management (DIPAM). Monetization of non-core assets envisages unlocking of value of these thus far unutilized or underutilized assets and generate returns on the equity that the Government has invested in them. So far, CPSEs have referred ~3400 acres of land and other non-core assets to DIPAM/MoF for monetization. Monetization of non-core assets of different CPSEs i.e., MTNL, BSNL, BPCL, B&R, BEML, HMT Ltd, Instrumentation Ltd etc. is at present under various stages of the transaction.

Since, at present, the desired skill set to take on the responsibility of management and monetization of non-core assets in Government is limited. Hon'ble Finance Minister in her Budget speech 2021-22 announced setting up of a Special Purpose Vehicle (SPV), with capacity and expertise, to carry out the monetization of the land and other non-core assets in an efficient and prudent manner, in line with international best practices. In pursuance of the Budget announcement, 'National Land Monetisation Corporation' (NLMC) is being incorporated as a 100 per cent Govt of India owned entity with an initial authorized share capital of ₹ 5000 crores and subscribed share capital of ₹ 150 crores.

[2]Monetisation Guidebook Volume 1, National Monetisation Pipeline, NITI Aayog.

Trends in Expenditure

2.27 The expenditure policy during the pandemic year 2020-21 was focused on prioritisation of expenditure according to evolving situation. In the initial phase of the pandemic, the Government ensured that funds were made available for essential activities and that scarce resources were conserved for re-prioritisation. With the easing of movement and health-related restrictions later in the year, expenditure was focused in sectors with the most positive effect on the economy, either in terms of re-kindling growth or meeting welfare needs. Second to pandemic relief, the Government placed maximum priority on productive domestic capital expenditure which has a high multiplier effect on the economy.

2.28 In the wake of the pandemic, the additional expenditure requirements led to a YoY growth of more than 30 per cent in the revenue expenditure of the Government in 2020-21 PA (**Table 5**). Expenditures on salaries, pensions and interest payments are, by and large, committed in nature and have limited headroom for creation of additional fiscal space. The decline in salaries during 2020-21 PA was largely due to freezing of the additional installment of Dearness Allowance to Government employees and disruptions in hiring. Nearly 60 per cent of the increase in revenue expenditure during 2020-21 PA was due to increase in major subsidies. The major subsidies registered a growth of over 200 per cent in 2020-21 PA over 2019-20. This increase was driven by almost 400 per cent growth in food subsidies from ₹ 1.09 lakh crore in 2019-20 to ₹ 5.25 lakh crore in 2020-21 PA. The steep rise in food subsidy bill was on account of Pradhan Mantri Garib Kalyan Ann Yojana introduced as part of the Economic Response to COVID-19, and the pre-payment of around ₹ 1.5 lakh crore of outstanding food subsidy related loans of the Food Corporation of India.

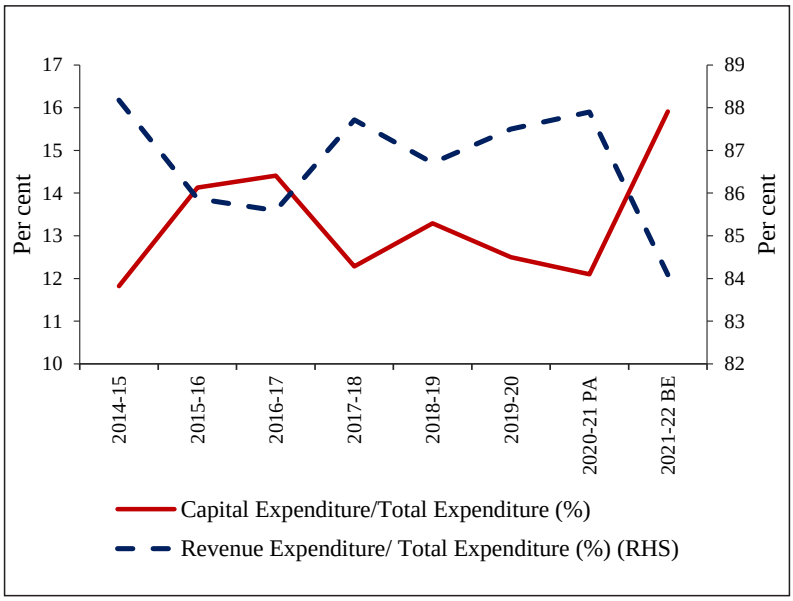
Table 5: Major Items of Revenue Expenditure

Items	2016-17	2017-18	2018-19	2019-20	2020-21 PA	2021-22 BE
						(in ₹ lakh crore)
Revenue Expenditure of which	16.91	18.79	20.07	23.51	30.86	29.29
	(9.9)	(11.1)	(6.8)	(17.1)	(31.3)	(-5.1)
a. Salaries (pay & allowances)	1.77	1.94	2.11	2.28	2.05	2.52
	(22.6)	(9.3)	(9.0)	(7.8)	(-10.0)	(22.9)
b. Pensions	1.31	1.46	1.60	1.84	2.09	1.90
	(35.8)	(10.9)	(9.9)	(14.8)	(13.7)	(-9.0)
c. Interest payment	4.81	5.29	5.83	6.12	6.82	8.10
	(8.8)	(10.0)	(10.2)	(5.0)	(11.4)	(18.7)
d. Major subsidies	2.04	1.91	1.97	2.28	6.90	3.35
	(-15.6)	(-6.3)	(2.9)	(16.0)	(202.0)	(-51.4)
e. Defence Services	1.65	1.86	1.96	2.08	2.06	2.12
	(13.3)	(12.5)	(5.1)	(6.1)	(-0.9)	(3.1)

Source: Union Budget Documents & CGA
BE: Budget Estimate, PA: Provisional Actuals
Numbers in parenthesis are growth rates
*The figure for Salaries (Pay & allowances) for 2020-21 is Revised Estimate (RE).

2.29 Government has focused on improving the quality of expenditure in both 2020-21 and 2021-22 BE. Capital expenditure registered a YoY growth of 26.5 per cent in 2020-21 PA, as it increased from 1.6 per cent of GDP in 2019-20 to 2.2 per cent of GDP in 2020-21 PA. The emphasis on capital expenditure was envisaged to continue in 2021-22 BE to reach a budget estimate of ₹ 5.54 lakh crore i.e. 2.5 per cent of GDP. This translates into a growth of 34.5 per cent and 30.5 per cent over 2020-21 BE and 2020-21 PA, respectively. As a proportion of total expenditure, capital expenditure has been estimated to increase from 12.1 per cent in 2020-21 PA to 15.9 per cent in 2021-22 BE **(Figure 16)**. The higher capital expenditure with a focus on infrastructure spending in 2021-22 BE will have a multiplier effect on the ongoing economic recovery.

Figure 16: Share of Revenue and Capital Expenditure in Total Expenditure



Source: Union Budget Documents & O/o CGA
BE: Budget Estimate, PA: Provisional Actuals,

2.30 Apart from budgetary spending, Extra Budgetary Resources (EBR) have also been mobilised to finance infrastructure investment since 2016-17. Government has raised EBRs of ₹ 6.04 lakh crore from 2016-17 to 2020-21, of which ₹ 1.43 lakh crore have been mobilised from the issue of Govt. fully serviced bonds and ₹ 4.61 lakh crore have been raised through financial support extended through loans from NSSF. The Budget 2021-22 focusses on improving fiscal transparency, as the EBRs for 2021-22 have been estimated at ₹ 30,000 crore. Further, in 2020-21 RE, the Government has estimated to pre-pay around ₹ 1.5 lakh crore of outstanding food subsidy related loans of the Food Corporation of India. In 2021-22 BE, the food subsidy requirements of FCI has been provided in the Budget.

Transfer to States

2.31 The Union Government has accepted the recommendations made by the Fifteenth Finance Commission (XV-FC) in its Report for the award period 2021-22 to 2025-26 relating to the grants-in-aid amounting to ₹ 2,33,233 crore to the States during 2021-22 for Post Devolution Revenue Deficit grant, grants to Local Bodies, Health sector grant and Disaster Management grants.

2.32 The Post Devolution Revenue Deficit Grants are provided to the States under Article 275 of the Constitution. The grants are released to the States as per the recommendations of the Fifteenth Finance Commission to meet the gap in Revenue Accounts of the States post devolution. The Fifteenth Finance Commission has recommended a total Post Devolution Revenue Deficit grant of ₹ 1.18 lakh crore to 17 States in the financial year 2021-22, of which an amount of ₹ 98,710 crore has already been released, as on 6th January 2022.

2.33 With regard to the grants to Local Bodies, the XV-FC had recommended that urban areas are grouped into two broad categories for recommending grants to urban local bodies: (a) Category-I cities: urban agglomerations/cities with more than one million population and (b) Category-II cities: other than million-plus cities. The Commission has recommended that for cities with million plus population (Million-Plus cities), 100 per cent of the grants are performance-linked through the Million-Plus Cities Challenge Fund (MCF). The Commission has recommended that 60 per cent of the grants to rural local bodies and for urban local bodies in non-Million-Plus cities should be tied to supporting and strengthening the delivery of two categories of basic services: (a) sanitation, maintenance of 'Open Defecation Free' status (for Rural Local Bodies), solid waste management and attainment of star ratings as developed by Ministry of Housing and Urban Affairs (for non-million plus cities / Category-II Cities / Towns; (b) drinking water, rain water harvesting and water recycling (both for Rural Local Bodies and Urban Local Bodies).

2.34 The XV-FC has recommended grants for Health to be channelised through Local Governments amounting to ₹ 13,192 crore for the year 2021-22. To strengthen and plug the critical gaps in the health care system at the primary health care level, XV-FC has also identified interventions that will directly lead to strengthening the primary health infrastructure and facilities in both rural and urban areas.

2.35 With regard to the Disaster Management grants, the Commission has recommended that the total States allocation for State Disaster Risk Management Fund (SDRMF) should be sub-divided into funding windows that encompass the full disaster management cycle. Thus, the SDRF (State Disaster Response Fund) should get 80 per cent of the total allocation and the SDMF (State Disaster Mitigation Fund) 20 per cent. Similarly, the Commission has recommended that NDRF (National Disaster Response Fund) should get 80 per cent of the total allocation of the National Disaster Risk Management Fund and balance 20 per cent for National Disaster Mitigation Fund.

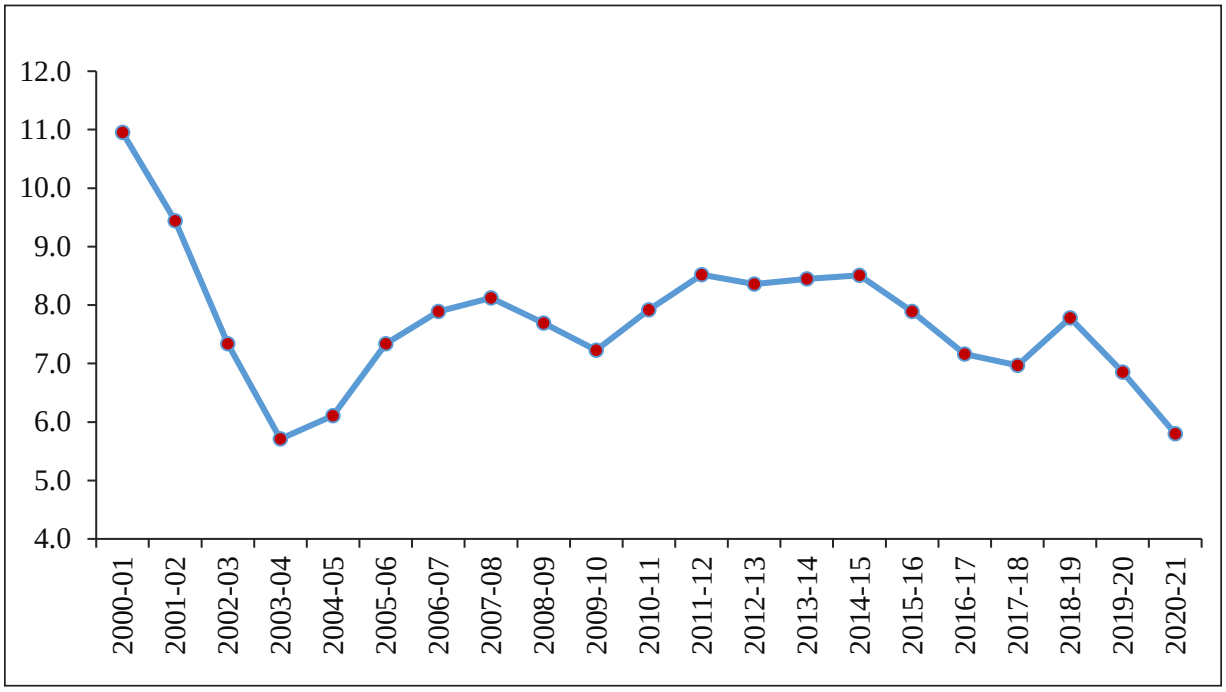
2.36 The component wise grants recommended by XV-FC for the year 2020-21 and for the year 2021-22 are as under:

S. No.	Components	Allocation for 2020-21	Allocation for 2021-22
			(in ₹ crore)
1.	Post Devolution Revenue Deficit grant	74,340	1,18,452
2.	Local Bodies grants including grant for health sector	90,000	80,207
3.	Disaster Management grant (Union Share)	34,574	34,574
	Grand Total	**1,98,914**	**2,33,233**

Central Government Debt

2.37 During the year, a major challenge in the aftermath of COVID-19 pandemic was the management of debt, both for the Central and State Governments. In this milieu, conventional and unconventional measures were taken in order to maintain the orderly market conditions to ensure that the increased financial needs of the Governments are met smoothly, while keeping in mind the major objectives of cost minimization, risk mitigation and market development. Supported by these measures, the weighted average cost of the Government on dated securities during 2020-21 was at 17-year low of 5.79 per cent, despite a 141.2 per cent jump in net market borrowings (**Figure 17**).

Figure 17: Weighted average interest rate on Central Government Securities (Per cent)



Source: RBI

2.38 Total liabilities of the Central Government include debt contracted against the Consolidated Fund of India, technically defined as Public Debt, as well as liabilities in the Public Account. These liabilities include external debt (end-of-the financial year) at current exchange rate but exclude part of NSSF liabilities to the extent of States' borrowings from the NSSF and investments in public agencies out of the NSSF, which do not finance Central Government deficit. Central Government's total outstanding liabilities were at ₹117.04 lakh crore at end-March 2021. Public Debt accounted for 89.9 per cent of total liabilities, while Public Account Liabilities, which include National Small Savings Fund, State Provident Funds, Reserve Funds and Deposits and other Accounts, constituted the remaining 10.1 per cent. A brief description of the major components of total liabilities of the Central Government may be seen at **Table 6**.

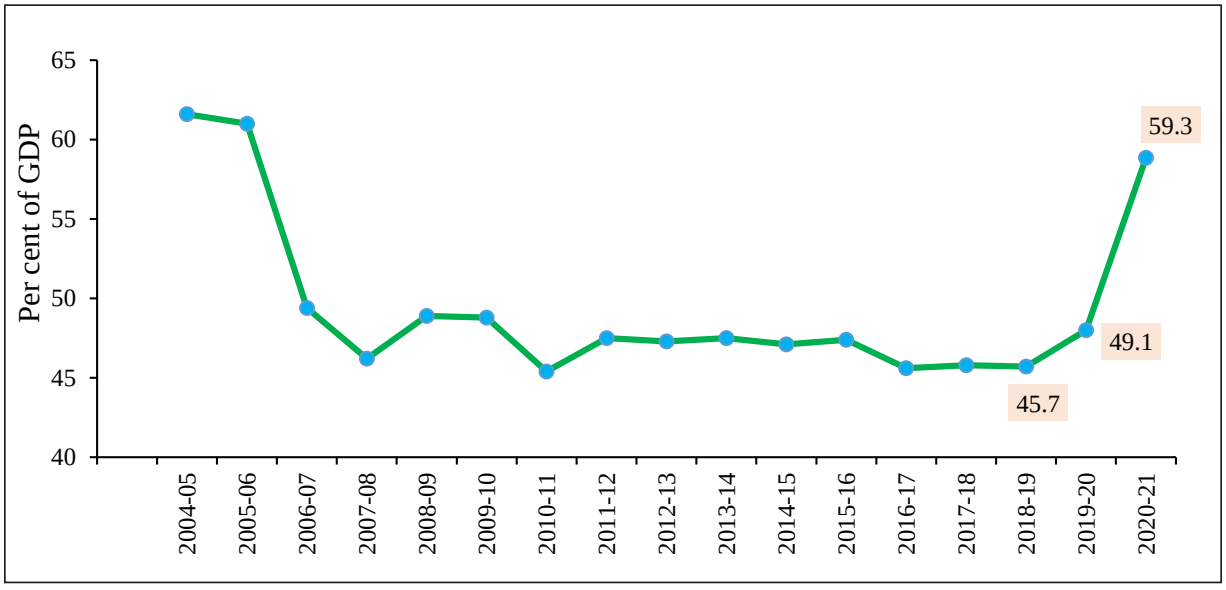
Table 6: Debt Position of the Central Government (in ₹ lakh crore)

Components	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21 PA
1	2	3	4	5	6	7	8
A. Public Debt (A1+A2)	51.05	57.11	61.50	68.45	75.49	85.65	105.24
A1. Internal Debt (a+b)	47.38	53.05	57.42	64.01	70.75	80.20	99.09
a. Marketable Securities	43.08	47.28	50.49	55.10	59.69	65.60	78.60
b. Non-marketable Securities	4.29	5.77	6.93	8.91	11.06	14.60	20.50
A2. External Debt	3.66	4.07	4.08	4.45	4.74	5.44	6.15
B. Public Account - Other Liabilities	7.62	8.16	8.57	9.15	9.96	13.70	12.74
C. Extra-Budgetary Resources (EBRs)	-	-	0.09	0.24	0.99	1.12	1.43
D. Total Liabilities (A+B+C)	58.66	65.27	70.16	77.85	86.35	99.91	117.04

Source: Union Budget and Finance Accounts (Various Issues); Provisional Accounts, CGA.

2.39 **Figure 18** shows that total liabilities of the Central Government, as a ratio of GDP, which were relatively stable over the past decade have risen sharply in 2020-21. This increase is on account of higher borrowing resorted to due to COVID-19 pandemic as well as sharp contraction in the GDP. The Debt-GDP is however expected to follow a downward trajectory in the upcoming years.

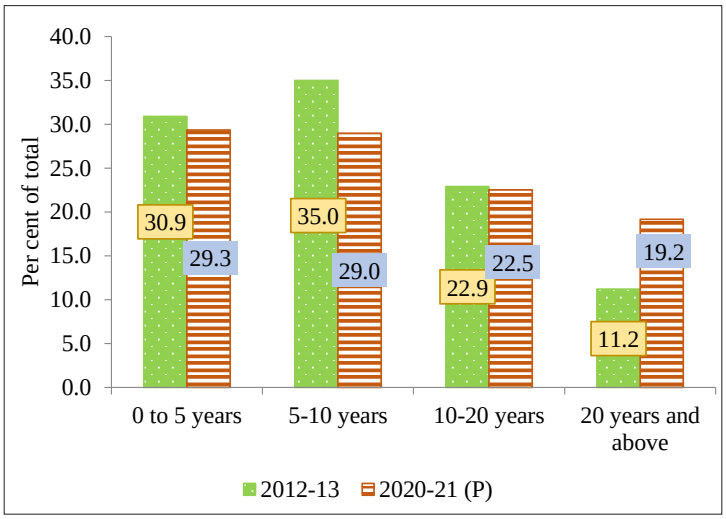
Figure 18: Trend in Centre's Debt-GDP ratio



Source: Various issues of Status Paper on Government Debt
Note: The figures for 2020-21 are Provisional

2.40 Public debt portfolio exhibits low currency and interest rate risk owing to low reliance on external borrowing and issuance of majority of securities at fixed coupon. Further, most of the external borrowing are from official sources which are of long term and concessional in nature. The roll over risk is also low owing to low issuance of short-term bonds with a view to elongate the maturity profile. The proportion of dated securities maturing in less than five years has seen consistent decline in recent years. The weighted average maturity of outstanding stock of dated securities of Government has increased from 9.7 years at end March 2010 to 11.31 years at the end March 2021, thus reducing the rollover risk (**Figure 19**).

Figure 19: Maturity Profile of Outstanding Dated Central Government Securities



Source: Status Paper on Government Debt; Quarterly Report on Public Debt Management;
Note: P: Provisional

2.41 Public debt is largely owned by institutional segments like banks, insurance companies, provident funds etc. The share of commercial banks stood at 37.77 per cent at end-March 2021, lower than 40.4 per cent at end-March 2020. Share of insurance companies and provident funds at end-March 2021 stood at 25.3 per cent and 4.44 per cent, respectively. Share of mutual funds increased from 1.4 per cent at end-March 2020 to 2.94 per cent at end-March 2021. Share of RBI went up to 16.2 per cent at end March-2021 from 15.1 per cent at end-March 2020. Issuance of dated securities is planned and conducted, keeping in view the debt management objective of keeping the cost of debt low, while assuming prudent levels of risk and promoting market development. All these factors make the public debt portfolio stable and also sustainable.

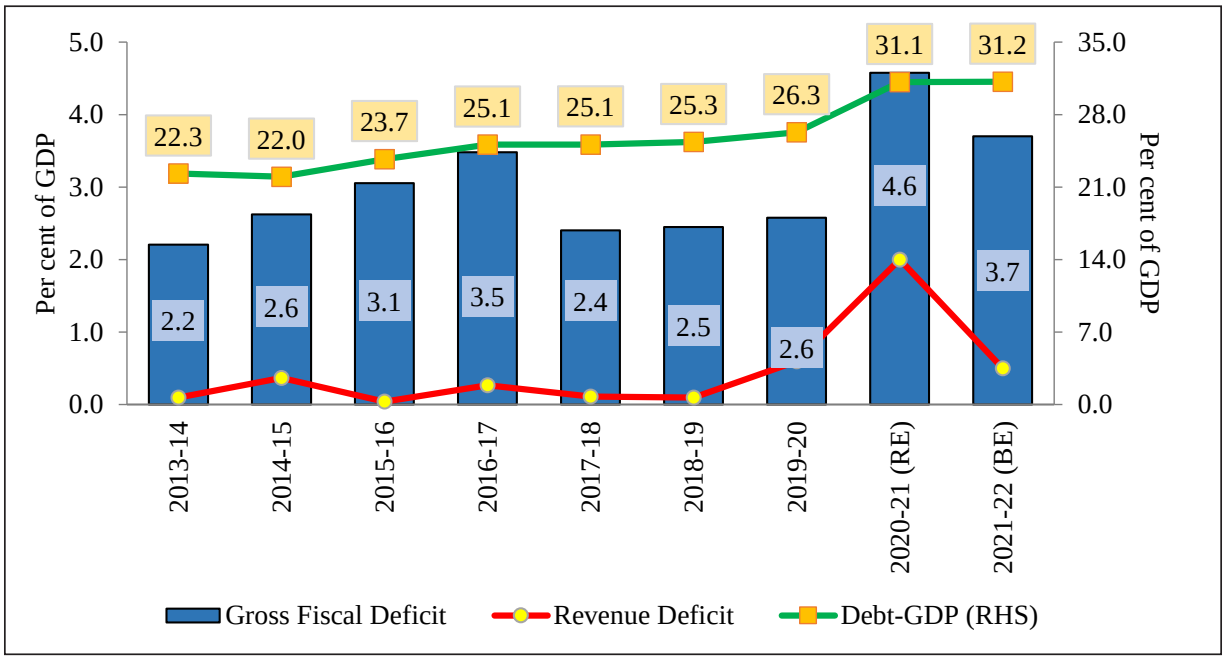
2.42 A vibrant secondary market provides opportunity to the investors to balance their portfolio as desired. Availability of government securities upto 40 years provides a wide choice to the investors. Trading though currently concentrated in few securities, is showing signs of more even spread. Moreover, the recently launched Retail Direct Scheme by RBI will be instrumental in channelizing the savings of middle class, small businessmen and senior citizens directly into risk free government securities. With an objective to facilitate efficient direct access of retail individual investor to the G-Sec market, which was earlier directly being accessed only by large institutional investors, this scheme will give a boost to financial inclusion and broaden the investor base.

2.43 Under the scheme, retail investors will be able to open a Retail Direct Gilt (RDG) account using an online portal through which it can directly invest minimum of ₹10,000 and maximum of ₹2 crore per security. The retail investors can not only place a non-competitive bid in primary issuance of all Central & State Government securities such as Treasury Bills and bonds but also access Secondary market through Negotiated Dealing System-Order Matching (NDS OM) - RBI's trading system, which was previously accessible only to select financial institutions. As of now, bulk of the G-Sec is held by few institutional investors like commercial banks, insurance companies and mutual funds. Diversified investor base provides flexibility to the Government in its borrowing program. Also, it would enable stable demand for G-sec from different investor categories.

State Finances

2.44 The Gross Fiscal Deficit of States is estimated to cross the Fiscal Responsibility Legislation (FRL) threshold of 3 per cent of GDP during 2020-21 RE and 2021-22 BE. The Revenue Deficit of the States also increased from 0.1 per cent of GDP in 2018-19 to 2 per cent of GDP in 2020-21 (RE) (**Figure 20**). This relaxation in borrowing limits was allowed on account of the additional expenditure needs and constrained revenues of the States due to COVID-19. The net borrowing ceilings of the States were enhanced to 5 per cent of GSDP of the States for the year 2020-21 and 4 per cent of GSDP of the States for 2021-22. The details may be seen in **Box 3.** Both Gross Fiscal Deficit and Revenue Deficit for the States are budgeted to decline in 2021-22 from the high levels they reached in 2020-21.

Figure 20: Major deficit and debt indicators of States



Source: RBI State Finances: A Study of Budget; RE: Revised Estimates ; BE: Budget Estimates
Note: States include 29 states and 2 Union Territories with legislatures.

2.45 In addition to the net borrowing ceilings fixed for the States, XV-FC had recommended performance based additional borrowing space of 0.50 per cent of Gross State Domestic Product

(GSDP) to States in the power sector. The objective of the additional borrowing space is to improve the operational and economic efficiency of the sector, and promote a sustained increase in paid electricity consumption. This special dispensation has been recommended for each year for a four-year period from 2021-22 to 2024-25.

2.46 As per 2021-22 Budget Estimates of the State Governments, the States' combined own Tax revenue and own Non-Tax revenue were anticipated to grow at 28.5 per cent and 36 per cent respectively over 2020-21 RE, as against the low growth displayed in 2020-21 RE. On the expenditure side, revenue expenditure and capital expenditure in 2021-22 BE were envisaged to grow at 12.1 per cent and 30.5 per cent respectively over 2020-21 RE (refer to **Table 7**).

2.47 The RBI Study on State Finances highlights that the States have budgeted for a higher capital outlay in 2021-22 BE vis-à-vis 2020-21 RE. The increased Capex outlays by the States are in sectors such as medical and public health, urban development, water supply and sanitation, irrigation and transport. In order to emphasize the importance of the States' fiscal policy towards capital expenditure, Central Government has continued the Scheme for Special Assistance to States for Capital Expenditure for 2021-22. The steps taken by the Central Government to support the State Governments towards a faster economic recovery amidst the COVID-19 pandemic may be seen in **Box 3**.

Table 7: Fiscal Indicators of States

Items	2016-17	2017-18	2018-19	2019-20	2020-21(RE)	2021-22 BE
	(in ₹ lakh crore; Numbers in parenthesis are growth rates)					
Own Tax Revenue	9.46	11.3	12.15	12.24	12.41	15.95
	(11.3)	(19.5)	(7.5)	(0.7)	(1.4)	(28.5)
Own Non-Tax Revenue	1.7	1.8	2.19	2.61	2.11	2.87
	(14.0)	(5.3)	(21.7)	(19.2)	(-19.2)	(36.0)
Revenue Expenditure	21.22	23.4	26.38	27.92	31.86	35.72
	(15.3)	(10.3)	(12.7)	(5.8)	(14.1)	(12.1)
Capital Expenditure	5.17	4.31	4.87	4.6	5.54	7.23
	(23.1)	(-16.6)	(13.0)	(-5.5)	(20.4)	(30.5)

Source: Source: RBI State Finances: A Study of Budget for 2020-21,
RE: Revised Estimates; BE: Budget Estimates;
Note: States also includes 2 UTs (Delhi and Puducherry) from 2017-18

Box 3: Measures taken by the Centre to support the States during 2021-22

The Central Government has taken consistent steps to impart unflinching support to the States in the challenging times of the pandemic. These measures are as follows:

1. Enhanced limit of borrowing for the States

FY 2020-21: Under the Atma Nirbhar Bharat package, additional borrowing limit of up to 2 per cent of Gross State Domestic Product (GSDP) was allowed to the States for FY2020-21, which was equivalent to ₹ 4.27 lakh crore. Of the additional 2 per cent borrowing allowed to the States, the first instalment of 0.5 per cent borrowing was untied for all the states. The second part amounting to 1 per cent of GSDP was subject to implementation of following four specific State level reforms, where weightage of each reform is 0.25 per cent of GSDP:-

a) Implementation of One Nation One Ration Card System;
b) Ease of doing business reform;
c) Urban Local body/ utility reforms; and
d) Power Sector reforms

Another, 0.5 per cent of GSDP, which was earlier linked to the completion of at least 3 out of 4 above mentioned reforms, was made untied for States choosing Option 1 to meet the shortfall arising out of GST implementation. 17 States implemented the One Nation One Ration Card System, 20 States completed the stipulated reforms in the Ease of Doing Business, 11 States had done local body reforms and 17 States carried out fully/partly Power Sector Reforms. Thus, for the year 2020-21 total borrowing permission of ₹3,19, 939 crore was issued to States out of the additional borrowing ceiling of 2 per cent allowed to States.

FY 2021-22: The net borrowing of the States for the year 2021-22 has been fixed at ₹ 8,46,922 crore at 4 per cent of GSDP of the States. Out of the net borrowing ceiling (NBC) of 4 per cent of GSDP for the States for 2021-22, 0.50 per cent of GSDP was earmarked for the incremental capital expenditure to be incurred by the States during 2021-22. For this, a target for capital expenditure was fixed for each State. To become eligible for incremental borrowing, States were required to achieve at least 15 per cent of the target set for 2021-22 by the end of first quarter of 2021-22, 45 per cent by the end of second quarter, 70 per cent by the end of third quarter and 100 per cent by 31st March 2022. As on 15 November 2021, a total additional borrowing permission of ₹ 32,412 crore had been issued to the States for fulfilling quarterly capital expenditure targets, of which ₹ 15,721 crore is enabled for 11 states for meeting the Q1 target and ₹ 16,691 crore has been given to 7 states for achieving the Q2 target.

2. Loan to States in lieu of GST Compensation shortfall

In order to meet the shortfall in Goods and Services Tax (GST) compensation to be paid to States, the Government of India had set up a special borrowing window in the year 2020-21. An amount of ₹ 1,10,208 crore was borrowed through this window by the Government of India during 2020-21 on behalf of the States and UTs with legislative assembly, and was passed on to the States/UTs as loan on back to back basis to help the States/UTs to meet the resource gap

due to non-release of compensation (owing to inadequate balance in GST compensation fund). The aforesaid borrowing arrangement was extended for the current financial year 2021-22 to raise their endeavour, Ministry of Finance has frontloaded the release of assistance under the back-to-back loan facility during FY 2021-22 of ₹ 1.59 lakh crore.

3. Scheme for Special Assistance to States for Capital Expenditure

Considering the fiscal environment faced by the State Governments during 2020-21 due to the shortfall in tax revenues arising from the COVID-19 pandemic, 'Scheme for Special Assistance to States for Capital Expenditure', was approved wherein special assistance of ₹ 11,830 was provided to the State Governments in the form of 50-year interest free loan during 2020-21. This Scheme of Special Assistance to States for Capital Expenditure has been extended for the year 2021-22 with an allocation of ₹ 10,000 crore. The Scheme for the financial year 2021-22 has three parts:

Part-I is for the 8 north eastern States i.e. Assam, Arunachal Pradesh, Meghalaya, Manipur, Mizoram, Nagaland, Sikkim and Tripura, and for the hill States of Uttarakhand and Himachal Pradesh. The sum allocated for this part is ₹ 2,600 crore. Out of this amount, ₹ 1,400 crore is divided equally among 7 north eastern States while ₹ 1,200 crore is earmarked for Assam, Uttarakhand and Himachal Pradesh in equal shares (₹400 crore each).

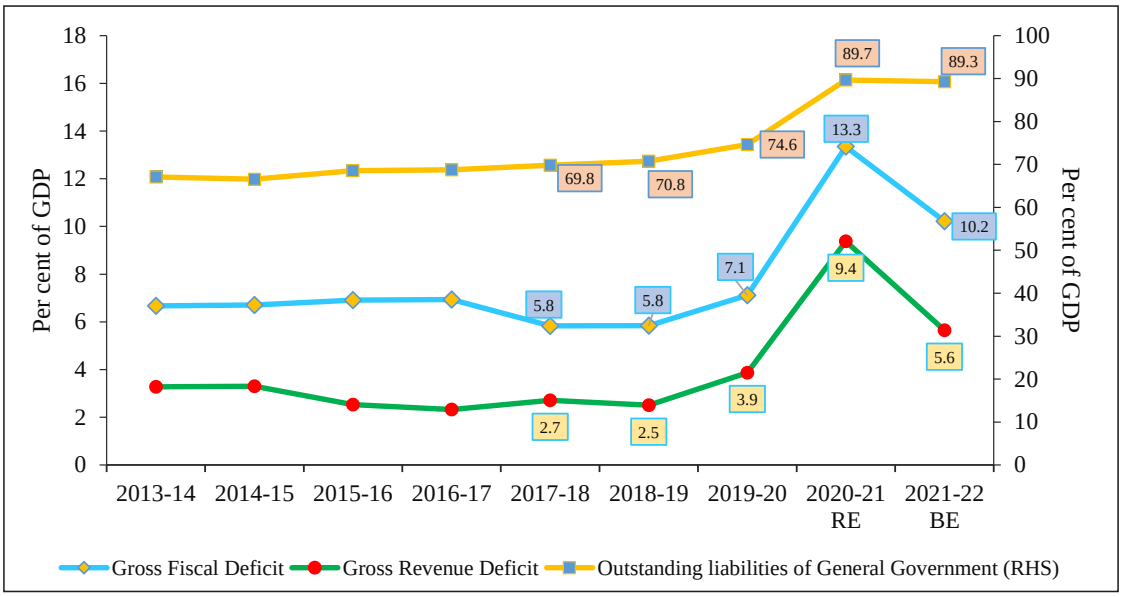
Part-II is for all other States not included in Part-I. An amount of ₹ 7,400 crore is earmarked for this part. This amount has been allocated amongst these States in proportion to their share of Central Taxes as per the award of the 15th Finance Commission for the year 2021-22.

Part-III is for providing incentives to States Governments for privatization/disinvestment of the State Public Sector Enterprises (SPSEs) and monetization/recycling of assets. Under this part, States will be provided additional funds as 50 years interest free loan over and above their allocation under Part-I/Part-II of the Scheme. An amount of ₹ 5,000 crore is allocated for this part of the Scheme.

General Government Finances

2.48 The General Government finances give an overview of fiscal position of the Government sector as a whole. **Figure 21** shows the trends in General Government debt and deficits over the past few years. The General Government liabilities as a proportion of GDP increased steeply during 2020-21 on account of the additional borrowings made by Centre and States due to the shortfall in revenue and higher expenditure requirements arising out of COVID-19 pandemic. However, in 2021-22 BE, the fiscal indicators are expected to rebound with the recovery in the economy and the General Government is expected to follow the path of fiscal consolidation. Detailed discussion on the dynamics of debt sustainability may be seen in Chapter 2 of Volume 1 (Economic Survey 2020-21).

Figure 21: Trends in General Government Debt and Deficits (as a per cent of GDP)



Source: RBI Handbook of Statistics for Indian Economy;
BE: Budget Estimates; RE: Revised Estimates

POLICY MEASURES TO ENHANCE THE EFFICIENCY OF GOVERNMENT SPENDING

2.49 While restructuring expenditure is a significant aspect of fiscal policy, enhancing the efficiency of Government spending is also important. Public procurement, which involves purchase of goods and services by the Government with an aim to not only carry day-to-day tasks but to also create social and economic infrastructure, is an important component of the Government expenditure. Government has undertaken consistent efforts to boost the efficiency of public procurement policy. Two of such reforms viz. Government e-Marketplace for routine procurement and new guidelines for reforms in Public Procurement and Project Management have been discussed in this section.

Government e-Marketplace (GeM)

2.50 The Government in 2016 had set up a dedicated e-market known as Government e-Marketplace (GeM) for purchase of certain standard day to day use goods. This is a simple, transparent and completely digital process for procurement. The General Financial Rules 2017 mandates all Ministries and Departments to procure Goods and Services available on GeM from GeM. The procedural changes in the procurement method after the introduction of GeM are given below (**Table 8**).

Table 8: Procedure for public procurement before and after GeM

Category	Before GeM	After GeM
Process of invitation of bids	Manual process for the invitation of bids, bid evaluation and finalization of the winning bid.	Completely online, no requirement for physical documentation.
Public procurement policy	Multiple agencies with multiple procurement guidelines and procedures.	Single, unified, fully online public procurement portal with clear guidelines.
Method of procurement	Paper-based procurement procedure with physical interaction.	Contactless, paperless and cashless with time-bound payments and real-time monitoring.
Method of negotiation and deliberation	Manual negotiation and fixing rates with the bidder and arriving at one rate applicable to all bidders.	Automatic, digitization and transparent processes.
Process of registration of vendors	Registration of vendors was a manual process involving visit by officials to the vendor premises and was a time-consuming process.	Authentication of users is done through API integration with respective domain databases.
Eligible articipants to the bid	Limited bidding & only registered vendors could participate.	Any vendor of the platform can participate in the bid as long the product matches the bid.
Monitoring of product delivered or service provided	Huge delay in delivery of products and delay in payment.	Real-time monitoring to ensure on-schedule delivery of products and services.

Source: Ministry of Commerce, PIB

2.51 Anecdotal evidence suggests that prior to GeM, government procurement prices were much higher than the prices prevailing in the market and there were constant complaints about inefficiency and rent seeking. The use of this e-marketplace has resulted in a substantial reduction in prices in comparison to the rates used earlier, with average prices falling by at least 15-20 per cent, up to 56 per cent[3]. **Box 5** depicts a comparison of prices on the GeM portal and other online marketplaces for a selected sample of goods.

Box 5: Prices of various commodities on the GeM portal vis-a-vis other online platforms

A comparison of prices of various commodities on the GeM portal with those of company websites or other online platforms such as Amazon, Flipkart, etc. is given in the table below. A similar analysis was included in Chapter 6 of Economic Survey 2020-21. For a close comparison, sample of same commodities as selected last year, is used to the extent possible. In cases where the exact commodity was not available, the newly available models were chosen. While in the last year's analysis, GeM prices were on an average 3 per cent lower when compared with other platforms, this time it is around 9.5 per cent lower for the chosen sample. 10 out of 22 commodities in the sample were cheaper on the GeM portal as compared to other platforms.

[3]GeM Booklet, Ministry of Commerce, January 2021

Table: GeM Portal Prices Comparison (as on 6th January 2022)

Name and Description (Model, features)	Price on GeM portal (in ₹)	Price at Amazon/ Flipkart/company Website etc. (in ₹)	% Variation in Offer Price (GEM prices over market prices)
Parker Jotter Standard Ball Pen	MRP: 250; Offer Price (OP): 200	Amazon; MRP: 250; OP: 207	-3.50
Rorito Greetz Gel Pen Maxtron Gold Robotic Fluid Ink System Pen -Blue	MRP: 99; OP:51	Amazon; MRP: Not Mentioned; OP: 119	-133.33
Samsung Basic Television TV 43 Inch LED Backlit LCD Model: SAMSUNG DC43J	MRP: 49,069 OP: 40,000; Warranty- 5 Year	Amazon.in- MRP: 69,000 OP: 43,900	-9.75
Omron White HEM 7156AP Blood Pressure Monitor	MRP: 3,860; OP: 3,100; Warranty - 2 years	Industryowl.com MRP: 2749; OP: 2,749 Warranty - 3 years	11.32
HP LaserJet Enterprise M507dn	MRP: 81,780 OP: 69,005 Warranty - 3 Years	Amazon; MRP: 82,450; OP: 69,005 Warranty - 1 Year	0.00
Kores Easy Cut 871 Paper Shredder	MRP: 25,490, OP: 22,940	Amazon; MRP: 23,990, OP: 20,130	12.25
HERO CYCLES Jet Gold 28T Unisex Road Cycle (Single Speed, Black)	MRP: 8,900; OP: 5,599	Amazon; MRP: 6,250; OP: 5,500	1.77
Milton 1500ml thermos	MRP: 1,560, OP: 1,101	Amazon: MRP: 1,875; OP: 1,499	-36.15
Nilkamal Dustbin 60 Litres	MRP: 2,150, OP: 840	Amazon- MRP: 1,599; OP: 1,350	-60.71
Nilkamal Pinnacle High Back Chair	MRP: 23,500, OP: 21,150	Nilkamalfurniture.com MRP: 17,000; OP: 16,674	21.16
Bajaj Pulsar 220 F	MRP: 1,18,250 OP: 1,18,250	Bikewale.com- MRP: 1,30,827 (Ex-show-room price in New Delhi)	-10.64
Godrej Interio Elite Mid Back Chair	MRP: 15,020, OP: 13,150	Godrej Interio website- MRP: 15,020	-14.22
Godrej Interio Steel Almirah 2400 mm (Slide N Store Compact Plus Wardrobe)	MRP: 34,374, OP: 32,239	Godrej Interio website- MRP: 34,374	-6.62

GODREJ INTERIO RHINE 3-SEATER RECLINER	MRP: 60,226, OP: 54,203 Warranty 1 year	Amazon; MRP: 66,444, OP: 66,444 Warranty- 1 year	-22.58
Dell OptiPlex 5490 AIO	MRP: 125,000, OP: 98,560 Warranty: 3 years	Hp website MRP: 138,490; OP: 79,069 Warranty: 1 Year Additional 2-year warranty: 10,500	9.12
Microtek Twin Guard Pro+ 1000VA UPS	MRP: 6,700, OP:6,030	Flipkart MRP: 6,000, OP: 5,100	15.42
Sony MHC-V21D High Power Portable Party System (HDMI, DVD, Bluetooth, NFC & USB) - Black	MRP: 27,999, OP:24,997	MRP: 27,999, OP:18,999	23.99
Ambrane 27000mAh Li-Polymer Powerbank with Type C	MRP: 3,999, OP:1,390	MRP: 3,400, OP:1,999	-43.81
BLUE STAR Floor Mounted Hot, Cold and Normal Water Dispenser	MRP: 9,900, OP:8,570	MRP: 11,700, OP: 8,398	2.01
BAJAJ Majesty RH11 F Plus Oil Filled Room Heater	MRP: 15,000, OP:11,113	MRP: 12,171, OP: 10,299	7.32
Neelgagan Notepad No. 33, 160 Pages/Notepad, Pack of 05	MRP: 480, OP:190	MRP: 499, OP: 179	5.79
Philips Base B22 7-Watt LED Bulb	MRP: 160, OP:143	MRP: 140, OP: 111	22.38

Source: GeM portal, Amazon, Flipkart, product websites
Note: OP: Offer Price

These results are broadly in line with the assessment of GeM conducted by the World Bank, which found that GeM enabled an average savings of 9.75 per cent on the median price for the period between February 2019 and January 2020. The maximum savings in the top five categories ranged from 23.5 per cent to 60.5 per cent. The study attributed this, in large part, to increased participation per bid and better price discovery.

New guidelines for reforms in Public Procurement and Project Management

2.52 Apart from the purchases of common goods from GeM, the government also procures non-routine Goods, Services and Works like construction of highways, buildings, hiring of consultants etc. This is done using the Central Public Procurement Portal as per the General Financial Rules (GFR) 2017. The GFR 2017 guidelines provide three methods for selection and evaluation of bidders viz Least Cost System[4], Quality-cum-Cost Based Selection (QCBS)[5] and Single Source Selection[6] (SSS) for different categories of procurement. However, in practice, as

[4]Least Cost System is based on a two-step consecutive evaluation, wherein a contract is granted to the bidder with the lowest financial bid among those who passed the minimum technical evaluation. There is no weightage for technical score in the final evaluation.

[5]In Quality-cum-Cost Based Selection, a bidder is selected on the basis of both the technical and financial proposals. A contract is granted to that bidder whose bid has received the highest combined score.

[6]A Single-source selection is one in which two or more vendors can supply the commodity, technology and/or perform the services required, but the State agency selects one vendor over the others for reasons such as expertise or previous experience with similar contracts.

a default, in most cases, the principle of Least Cost System, commonly known as 'L1' is the most prevalent.

2.53 While the L1 system may be good for procurement of routine works and non-consulting services, this method may not be able to cater to the need for innovation, quality, speed and functionality for high impact, complex and technology-intensive procurements. Various organisations including Central Vigilance Commission and NITI Aayog have advocated the need for reforming the current procurement system over the last many years. They argued that solely relying on L1 does not work well and there is a need to move from 'one size fits all' to 'fit to purpose' approach and various alternatives such as Value for Money, Rated Criteria to consider non-price attributes should be included in the procurement methods. Chapter 6 in Economic Survey 2020-21 (Volume 1) also argued for the need of going beyond L1 for public procurement.

2.54 Alternative methods of procurement other than L1, which consider non-price attributes as well, allow for choosing the contractor based on a certain amount of technical skills, previous experience *etc*. This puts an indirect pressure on the contractors to perform well for being eligible for future contracts, thus ensuring that contractors have 'Skin in the game'. Evidence suggests that contractors who have 'Skin in the Game' are more likely to make optimal long-term decisions. Singh (2019)[7] points out that the national highway projects executed by L1 combined with bundling contracts (commonly called PPPs) have lower project delays and better quality, compared to the projects executed through traditional unbundling contracts, *i.e.*, with the standard L1 process, despite same environmental and regulatory conditions being faced by both kinds of projects.

2.55 Keeping in mind the limitations of the earlier procurement strategy, the Government issued new guidelines for procurement and project management in October 2021, which have expanded the ambit of selecting bidders for executing government projects and procuring goods and services. The key changes in the procurement process are as follows:

- ***QCBS for Works and Non-consultancy Services:*** As per the earlier procurement guidelines, QCBS was allowed for only Consultancy Services. The revised guidelines now allow QCBS for the selection of bidders for works and non-consultancy services as well (where estimated value of procurement does not exceed ₹10 crore). The bidders would be scored both on cost and technical parameters and one with the highest weighted combined score (quality and cost) would be selected. The maximum weight for non-financial parameters is 30 per cent.
- ***Fixing of Evaluation/ Qualification and Scoring Criteria under QCBS for Works and Non-consultancy Services:*** In order to ensure quality, the procuring entities now have the freedom to amend the specifications based on their requirements and make any criteria used in evaluation as mandatory. Any bid that does not meet the pre-requisite criteria need not be evaluated further. Moreover, weightage may also be given for timely completion of past projects of similar nature by the bidder. In the scoring criteria, marks for quality compliance have also been included.

[7]Singh, Ram, Do Public Private Partnerships Deliver Better Outcomes? Delays and Cost Overruns in Highways Projects in India (December 5, 2021)

- ***Stringent deadlines for making payments*:** Delay in payments to contractors results in prolonged project execution, cost overruns and disputes. The new guidelines stipulate timely release of payments of 75 per cent or more of bills raised within 10 working days of the submission of the bill. The remaining bill payment is to be made after final checking within 28 working days. The procuring entity is also liable to pay interest if the payment of bills is delayed by over 30 working days.
- ***Single bid rejection:*** The new rules stipulate public authorities to consider single bid as valid provided that the procurement was satisfactorily advertised, sufficient time was given for submission of bids, the qualitative criterion were not unduly restrictive and prices are reasonable in comparison to market values.
- ***Fixed Budget based Selection for Consultancy Services:*** An additional method, fixed budget-based Selection has been added for consultancy services wherein the type of consulting service required is simple and/or repetitive and can be precisely defined. Under this method, the cost of consulting services shall be specified as affixed budget in the tender document itself. Because of the basic and repetitive nature of the consultancy work, its budget can be reasonably approximated.

Table 9: Alternative Methods of Public Procurement

Alternatives	Goods	Works	Services (Consultancy)	Services (Non-Consultancy)
Least Cost System (LCS)	√	√	√	√
Quality-cum-Cost Based Selection	X	√√	√	√√
Single Source Selection	√	√	√	√
Fixed Budget Based Selection	X	X	√√	X

Source: General Financial Rules
Note: √ - Already available in GFR 2017; √√ - Allowed in 2021 notification; X- Not allowed

ANNEX

Annex 1: Direct Tax measures by CBDT during 2021-22

Improvements in tax administration

- In continuation with the Government's emphasis on providing a more transparent, efficient and tax-payer friendly tax administration and improving taxpayer convenience, several initiatives have been launched by the Government. These will also ensure promotion of investment and employment generation.

Ease of compliance for taxpayers

- Most of the processes and compliance requirements have been shifted to online platforms and the need for the taxpayers to physically visit the Income Tax Offices has been eliminated or minimized. Interaction with taxpayers is characterized by a spirit of trust and respect, relying more on voluntary compliance.
- A new e-filing portal was launched in 2021 with improved features such as a new taxpayer-friendly portal integrated with immediate processing of ITR return, pre-filled returns, free of cost ITR preparation software, new call centre for taxpayer assistance including chat bot/ live agent and mobile app function.
- To ease burden of senior citizens above the age of 75 years, they have been given exemption from filing income tax returns if they only have pension income and interest income. In their case the specified bank will be responsible for computing their income and deduction of tax.
- The time limit for re-opening of assessment has also been reduced from six years to three years. Beyond the period of three years, only where there are books of account / documents / evidence of concealment of income of Rs 50 lakh or more in a year represented in the form of an asset, can the assessment be re-opened up to a period of 10 years with the approval of the Principal Chief Commissioner of Income Tax.
- Certain non-resident persons have also been exempted from the requirement of furnishing of income tax returns, subject to fulfilment of prescribed conditions. The benefit of exemption is available from Assessment Year 2021-22 onwards. Relief has also been provided to NRIs regarding issues being faced on accrued incomes in their foreign retirement accounts.
- To reduce the compliance on small charitable trusts running educational institutions and hospitals, relief by way of tax exemption to such trusts has been provided by the Finance Act 2021 by increasing the existing threshold of annual receipts from Rs 1 crores to Rs 5 crores. Certain improvements have also been introduced in the registration process for charitable trusts with the Department including online process for filing of application, on-line processing of the applications and passing of the registration orders, online filing of donation statements by donee etc.
- To reduce litigation, Finance Act 2021 has introduced a special mechanism for dispute resolution to reduce the disputes particularly for small and medium taxpayers having

taxable income of upto Rs 50 lakhs and any disputed income of Rs 10 lakhs can approach this committee. It will prevent new disputes and settle the issue at the initial stage.

Faceless procedures to promote transparency

- The Faceless Assessment Scheme was launched in 2020 which abolishes the earlier system of tax administration and assessment based on territorial jurisdiction. It provides for assessment by randomly chosen virtual teams with dynamic jurisdiction. More than two lakh cases have been allocated out of which 1.99 lacs have been completed without any interaction with the taxpayer. So far around 11.20 lac notices have been issued in a faceless manner out of which responses have been received in more than 6.93 lac cases (as on 16.11.2021).

- Faceless Appeals Scheme has also been launched which allows taxpayers to file their documents in an electronic mode and saves them the hassle of visiting the Income Tax Department. About 88 per cent of the appeals are handled under the Faceless Appeals mechanism. To ease compliance, it has been clarified that e-verification and digital signature is not needed if documents are filed through e-filing account in faceless assessment proceedings.

- Faceless Penalty scheme 2021 was also launched to impart greater efficiency, transparency and accountability to the procedure for imposition of penalty. The Scheme makes it possible for taxpayers to submit replies and participate in the proceedings at their convenience. It also provides for peer review of orders which will result in orders that are qualitatively better, reasonable and fair.

- The Finance Act 2021 has also empowered the Central Government to notify a scheme for disposal of appeals by the Income Tax Appellate Tribunal (ITAT) to impart greater efficiency, transparency and accountability by eliminating the interface between the Appellate Tribunal and parties to the appeal in the course of appellate proceedings to the extent technologically feasible, optimizing utilization of resources through economies of scale and functional specialization and introducing an appellate system with dynamic jurisdiction. All communication between the Tribunal and the appellant shall be electronic. In case where personal hearing is needed, it shall be done through video-conferencing.

Reduction in compliance requirement

- A comprehensive study of the Income Tax Act and rules had been undertaken to identify those compliance which can be reduced. Out of total 271 compliances which belong to Income-tax Act, 74 compliances have already been reduced. However, out of the remaining 197 compliances, 152 are already online and 45 are offline. Out of these 45 offline compliances, 42 compliances will be made online. 3 compliances will need to be manual due to non-availability of PAN in certain cases. Further efforts are continuously being made to provide online facilities to the taxpayers for ease of compliance. In 2021, a utility was released where taxpayers can check in quick time from PAN of their clients, if the client has filed return of income and therefore no extra tax to be deducted.

Measures to boost investment

- To promote foreign investment and tax certainty, the retrospective part of the amendment made by Finance Act 2012 regarding taxation of offshore indirect transfer of assets located in India has been nullified by the Taxation Laws (Amendment) Act 2021 so as to provide that no tax demand shall be raised in future on the basis of the said retrospective amendment for any offshore indirect transfer of Indian assets if the transaction was undertaken before 28th May 2012. A framework has been notified specifying conditions under which existing litigation on this issue can be settled. The amount paid/collected in these cases shall be refunded, without any interest, on fulfilment of certain conditions. Removal of the retrospective taxation on offshore indirect transfer of Indian assets signals the Government's resolve to ensure a non-adversarial tax environment.

- Incentives have been provided by Finance Act 2020 to encourage foreign investments of Sovereign Wealth Funds and Pension Funds into the infrastructure sector of India. Finance Act 2021 relaxed some of the conditions. Since January 2021, nine Sovereign Wealth Funds and 14 Pension Funds have been notified to claim exemption.

- In order to incentivize start-ups, the eligibility for claiming tax holiday has been extended for start-ups incorporated till 31st March 2022 by the Finance Act 2021. The capital gains exemption for investment in start-ups has also been extended for one more year till 31st March 2022.

- Various tax incentives have been provided for units located in International Financial Services Centre (IFSC) in order to make it a hub for financial services in the world. IFSCs provide Indian corporates easier access to global financial markets and promote further development of financial markets in India. Further incentives have been provided in the Finance Act 2021 like tax holiday on capital gains for aircraft leasing companies, tax exemption for aircraft lease rentals paid to foreign lessor, tax incentives for relocating foreign funds into IFSC and allowing tax exemption for the investment division of foreign banks located in IFSC.

Promoting digital transactions

- It is the declared policy of the Government to encourage digital transactions and move towards cash less economy. In furtherance of this objective, through the Finance Act 2021, the monetary threshold of getting books of accounts audited has been increased to Rs 10 crores in case of businesses whose total turnover or gross receipts made in cash does not exceed 5 per cent of the total turnover or gross receipts and the total expenditure including purchases made in cash does not exceed 5 per cent of the total expenditure during the previous year.

Measures undertaken to curb Tax Evasion and promote the widening of tax-base

- For widening the tax net of Tax Deduction at Source (TDS) and Tax Collection at Source (TCS) several new transactions were brought into its ambit. These transactions include huge cash withdrawal, foreign remittance, purchase of luxury car, e-commerce participants, sale of goods, acquisition of immovable property, etc.

- In order to promote the furnishing of income-tax returns, a special provision has been inserted to the Act to deduct/ collect tax at higher rates in case of certain persons who have not filed their income tax return for both of the preceding two previous years and the tax deducted/ collected was greater than Rs 50,000 in each of the two years. Further, TDS at the rate of 0.1 per cent on payment made for purchase of goods by a buyer (having sales/ turnover of Rs 10 crores or more in the financial year preceding the year in which the sale is made) to a person during the financial year exceeding Rs 50 lakh has also been introduced in the Finance Act 2021.

CBDT's response to COVID-19 pandemic during 2021-22

- The Central Government, in continuation of its commitment to address the hardship being faced by various stakeholders on account of the COVID-19 pandemic instituted many policies to help cope with the impact of COVID-19.
- Unfortunately, certain taxpayers have lost their life due to COVID-19. Employers and well-wishers of such taxpayers had extended financial assistance to their family members so that they could cope with the difficulties arisen due to the sudden loss of the earning member of their family. In order to provide relief to the family members of such taxpayer it has been announced that income-tax exemption will be given to ex-gratia payment received by family members of a person from the employer in the event of death on account of COVID-19 during 2019-20 and subsequent years. The exemption is proposed to be allowed without any limit for the amount received from the employer and to be limited to ₹ 10 lakh in aggregate for the amount received from any other persons.
- It was recognized that many taxpayers have received financial help from their employers and well-wishers for meeting their expenses incurred for treatment of COVID-19. In order to ensure that no income tax liability arises on this account, it has been announced that income-tax exemption will be provided to the amount received by a taxpayer for medical treatment for treatment of COVID-19 during 2019-20 and subsequent years.
- The Central Government also extended timelines for compliances under the Income-tax Act, 1961 such as furnishing of statements, filing of income tax returns etc. The time limits for passing various orders under various sections of Income Tax Act were also extended due to COVID-19 pandemic.
- The last date of linkage of Aadhaar with PAN has been extended to 31st March 2022.

Annex 2: Indirect tax measures by CBIC during 2021-22

A. Customs

The Customs duty rate structure has been guided by a conscious policy of the government to incentivize domestic value addition under Make in India and *Atma Nirbhar Bharat* initiative, which interalia envisages imposition of lower duty on raw materials and providing reasonable tariff support to goods being manufactured in India. The customs duty structure has been calibrated in such way that incentivizes investment in key areas like petroleum exploration, electronic manufacturing etc. In accordance with this policy, the MFN rates of BCD have

been increased in recent years on such items which are being manufactured in India or which domestic industry aspires to manufacture. Accordingly, during the last 6 years, about 4000 tariff lines (approximately 1/3rd of total tariff lines) have seen upward calibration of BCD. Such items include, metals, metal products, auto parts, footwear, fabrics, garments, specified chemicals, toys, certain machinery, medical equipment, a number of MSME items like bells, gongs, ceramic wares, table ware, utensils, hardware etc, consumer electronics and home appliances including mobile, TV, refrigerators, washing machine, AC, fans, heaters, hair dryers, shavers, toasters, ovens etc. At the same time, duties of inputs and raw materials have been rationalized.

Under the Phased Manufacturing Plan (PMP) in respect of significant products like mobile phones, other electronic goods like TVs, electric vehicles, batteries, solar panel etc, the BCD rates in respect of different stages of the value chain of these products are calibrated in a manner that encourages gradual deepening of domestic value addition. For example, in respect of mobile phones, initially the parts were placed under nil BCD while duty was imposed on mobiles. Gradually, duty has been raised on parts in phased manner as their production began in India.

Changes in Customs Law and Procedure:

- In order to ensure swift and secure movement of dutiable goods from port of import to customs warehouse, CBIC has launched the use of ECTS (Electronic Cargo Tracking System) in Oct 2021. This concept is borrowed from transhipment procedure for cargo meant for neighbouring countries.
- CBIC has launched version 2 of online application for filing, real time monitoring and digital certification for on boarding Authorized Economic Operators (AEOs) Tier 2 and Tier 3.
- In addition, CBIC has taken major decisions which would lead to significant reduction of dwell time and faster Customs clearances on import. The facilitation percentage has been increased to 90 per cent w.e.f. 15th July 2021. Linked to this enhanced facilitation, the scheme of Direct Port Delivery (DPD) has been revamped to a Customs document based DPD from the previous client based DPD.
- CBIC has introduced Risk Management System (RMS) to facilitate faster drawback disbursal for genuine exporters and to help in better checking of fraudulent drawback claims on exports.
- CBIC has launched the Indian Customs Compliance Information Portal (CIP) for providing free access to information on all Customs procedures and regulatory compliance for nearly 12,000 Customs Tariff Items.
- To address the shortage of containers across the Country, CBIC issued instructions to enable more availability of containers for exports.
- Remission of Duties and Taxes on Exported Products Scheme enables issue of Export Rebate in the form of a transferable duty credit/ electronic scrip (e-scrip) which will be maintained in an electronic ledger by the CBIC. This revamped end-to-end automated scheme aims to provide a boost to Indian exports by providing a level playing field to domestic industry abroad.

- Various agreements/MoUs were signed by Indian Customs with countries like Maldives, USA, BRICS etc on various Customs related matters for mutual co-operation. This will facilitate movement of goods across the countries

B. Union Excise Duties

Retail Selling Price of petrol and diesel in the country are linked to the prices of crude. The crude prices have been falling in this year. The crude prices have been increasing in last few months. Indian basket is moving upwards and reached beyond $ 84 per barrel in October, 2021. The Dollar exchange rate was also on the upward trend and is hovering around ₹ 75 per USD which was also impacting the prices of Petrol and Diesel. In this background, Excise Duty on petrol and diesel was rationalized by Rs 5 per litre on Petrol and ₹ 10 per litre on Diesel. After this move, many states and Union Territories have also reduced VAT on Petrol and Diesel to give relief to the consumers.

C. Goods and Services Tax

GST consolidated a myriad and complex rate structure with multitude of rates, varying with states, local bodies etc., and with huge cascading into one tax and a simplified procedural regime. The scale of reform was gigantic and the law and regime evolved in an inclusive way. There has been extensive participation of all stake holders. Continuous improvements are being made in an extremely responsive way in GST, with the GST Council responding swiftly, glitches being addressed quickly, and timely necessary changes being made. A massive exercise of calibration of GST rates has also been done so as to fix the rates and maintain revenue neutrality. Following are some of the changes made to GST rates on goods and services during 2021:

- In the 45th and 46th GST Council, the recommendation of the Fitment Committee for calibrating the GST rate structure to correct the inverted duty structure on textiles and footwear were discussed. Accordingly, it was decided to correct duty inversion in textiles by prescribing 12 per cent GST for footwear of sale vale exceeding Rs 1000 per pair.
- Brick kilns would be brought under special composition scheme with threshold limit of ₹ 20 lakhs, with effect from 1.4.2022. Bricks would attract GST at the rate of 6 per cent without ITC under the scheme. GST rate of 12 per cent with ITC would otherwise apply to bricks.
- Services supplied to an educational institution including anganwadi (which provide pre-school education also), by way of serving of food including mid- day meals under any midday meals scheme, sponsored by Government is exempt from levy of GST irrespective of funding of such supplies from government grants or corporate donations.
- Services provided by way of examination including entrance examination, where fee is charged for such examinations, by National Board of Examination (NBE), or similar Central or State Educational Boards, and input services relating thereto are exempt from GST.
- In order to extend the same dispensation as provided to MRO units of aviation sector to MRO units of ships/vessels, so as to provide level playing field to domestic shipping MROs vis a vis foreign MROs, the GST on MRO services in respect of ships/vessels was reduced to 5 per cent (from 18 per cent). The PoS of B2B supply of MRO Services in respect of ships/ vessels shall be the location of recipient of service.

Changes in GST Law and Procedure: The following measures were undertaken for trade facilitation and ease of doing business under GST in 2021-22:

- To provide relief to the taxpayers from high amount of late fee accumulated on pending GSTR-3B returns, a late fee amnesty scheme has been brought out in respect of pending returns in FORM GSTR-3B for the tax periods from July, 2017 to April, 2021.
- To reduce burden of late fee on smaller taxpayers, late fee structure (under section 47 of the CGST Act) has been rationalized for prospective tax periods from June 2021 onwards by aligning the upper cap of late fee with tax liability/ turnover of the taxpayers.
- Retrospective amendment of section 50 of CGST Act, 2017 was done to provide interest payment on net cash basis with effect from 01.07.2017 to facilitate the taxpayers and to help in removing ambiguity and disputes regarding payment of interest on gross tax basis or net cash basis.
- Instead of quarterly requirement to file FORM GST ITC-04 return, containing details of all goods sent to job worker and received from job worker, it has been made an annual requirement for taxpayers having annual aggregate turnover in preceding financial year is up to ₹ 5 crores and once in six months for taxpayers having annual aggregate turnover in preceding financial year above ₹ 5 crores.

COVID Related Relief Measures

Several measures were taken by CBIC for facilitating Customs clearances of all materials related to COVID-19 during 2021-22.

- CBIC had issued notifications to exempt customs duty on import of Remdesivir injection, Remdesivir API and Beta Cyclodextrin (SBEBCD) used in the manufacture of Remdesivir (up to 31st October, 2021), and also on import of various items related to Oxygen and Oxygen related equipment (for a period of three months).
- During the second wave of COVID-19 pandemic, the Customs has facilitated the import of approx. 7.5 Lakh Oxygen Concentrators into the country. More than 75 IAF landings were facilitated for import of 97 Cryogenic ISO tanks for carrying of liquid oxygen across the country. Other products facilitated on high priority includes Oxygen generating plants, equipments, ventilators, Remdesivir Injection and its raw materials, diagnostics kits markers etc.
- In view of the challenges faced by taxpayers in meeting the statutory and regulatory compliances under GST law due to the outbreak of the second wave of COVID-19, the Government has issued notifications providing various relief measures for taxpayers. Some of these measures are reduction in rate of interest for delayed tax payments, waiver of late fee, extension of due date for filing of return, extension of statutory time limits under section 168A of the CGST Act. A dedicated helpdesk was set up to handhold the trade and handle grievances of the trade across the country.

External Sector

03
CHAPTER

External trade recovered strongly in 2021-22 after the pandemic-induced slump of the previous year, with strong capital flows into India, leading to a rapid accumulation of foreign exchange reserves. The resilience of India's external sector during the current year augurs well for growth revival in the economy. However, the downside risks of global liquidity tightening and continued volatility of global commodity prices, high freight costs, coupled with the fresh resurgence of COVID-19 with new variants may pose a challenge for India during 2022-23.

Owing to the recovery of global demand coupled with revival in domestic activity, India's merchandise exports and imports rebounded strongly and surpassed pre-COVID levels during the current financial year. The revival in exports was also helped by timely initiatives taken by Government. USA followed by UAE and China remained the top export destinations in April-November, 2021, while China, UAE and USA were the largest import sources for India. Despite weak tourism revenues, there was significant pickup in net services receipts during April-December, 2021 on account of robust software and business earnings, with both receipts and payments crossing the pre-pandemic levels.

India's current account balance turned into deficit of 0.2 percent of GDP in the first half (H1) of 2021-22, largely led by deficit in trade account. Net capital flows were higher at US$ 65.6 billion in H1: 2021-22, on account of continued inflow of foreign investment, revival in net external commercial borrowings (ECBs), higher banking capital and additional special drawing rights (SDR) allocation. India's external debt rose to US$ 593.1 billion as at end-September 2021, from US$ 556.8 billion a year earlier, reflecting additional SDR allocation by IMF, coupled with higher commercial borrowings.

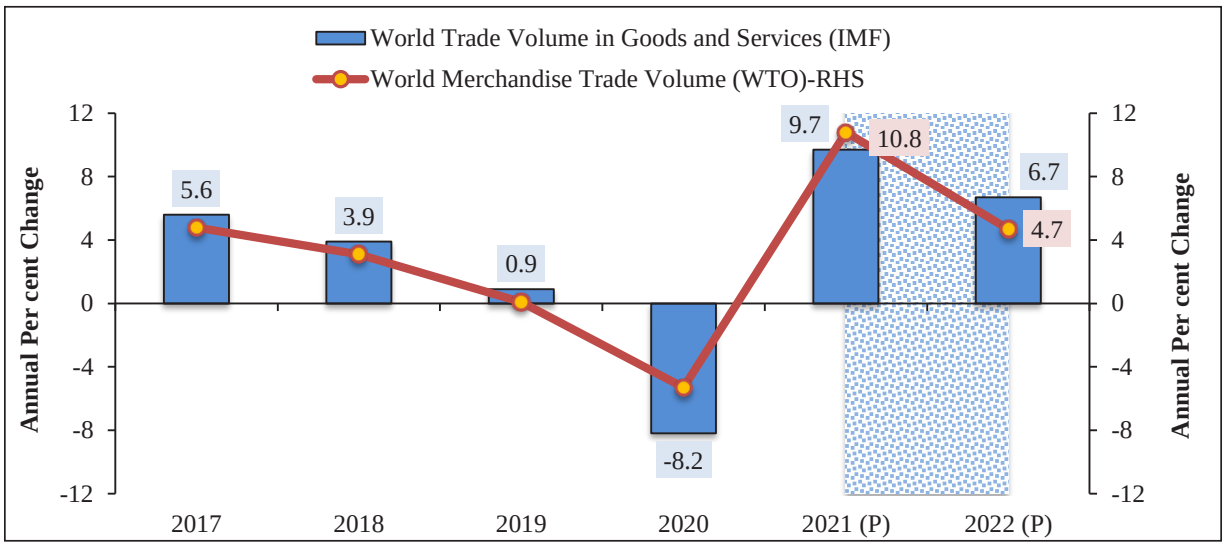
The robust capital flows were sufficient to finance the modest current account deficit, resulting in an overall balance of payments (BoP) surplus of US$ 63.1 billion in H1 of 2021-22, that led to an augmented foreign exchange reserves crossing the milestone of US$ 600 billion and touched US$ 633.6 billion as of December 31, 2021. As of end-November 2021, India was the fourth largest forex reserves holder in the world after China, Japan, and Switzerland.

A sizeable accretion in reserves led to an improvement in external vulnerability indicators such as foreign exchange reserves to total external debt, short-term debt to foreign exchange reserves, etc. India's external sector is resilient to face any unwinding of the global liquidity arising out of the likelihood of faster normalisation of monetary policy by systemically important central banks, including the Fed, in response to elevated inflationary pressures.

GLOBAL ECONOMIC ENVIRONMENT

3.1 The COVID-19 pandemic continued to impact the global economic environment during 2021. The first half (H1) of the calendar 2021 witnessed an acceleration in the global economic activity, that lifted the merchandise trade above its pre-pandemic peak. Reflecting this, International Monetary Fund (IMF) in its World Economic Outlook (WEO) October 2021 edition projected higher growth of global trade volume in goods and services of 9.7 percent in 2021, moderating to 6.7 percent in 2022, in line with the projected global recovery. World Trade Organization (WTO) in its October 2021 release, also upgraded its forecast for global merchandise trade volume growth to 10.8 percent in 2021, followed by a 4.7 percent rise in 2022 (Figure 1).

Figure 1: Projection for World Trade Volume Growth



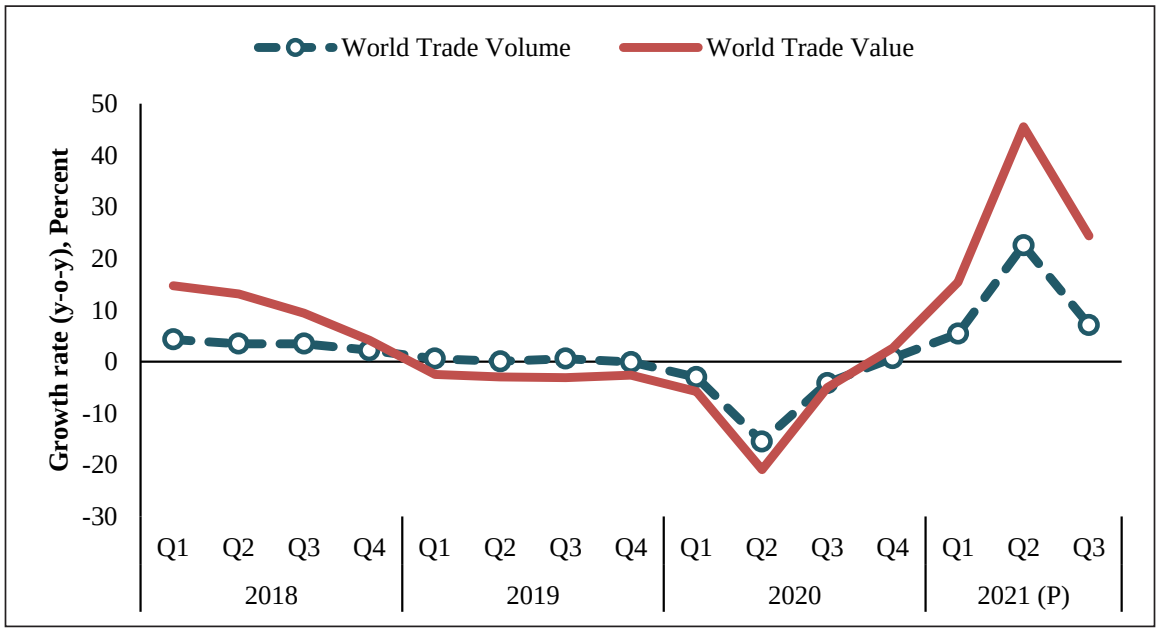
Source: IMF and WTO
Note: Projections. The shaded area represents projected growth.

3.2 Apart from revival in global economic activity, the high growth rate for global merchandise trade volume in H1 of 2021 is also aided by the previous year's slump, which bottomed out in the second quarter of 2020. The pick-up in momentum witnessed during the first two quarters of 2021 weakened again by the third quarter (Q3) due to rapid spread of Delta variant and the threat of new variants. It led to breakage in critical links of global supply chains resulting in longer than expected supply disruptions, taking its toll on the global recovery. The world trade in nominal value terms (US dollar) during 2021 tracked that in terms of volume: deceleration in Q3, following an acceleration in first quarter (Q1) and second quarter (Q2) (Figure 2).

3.3 Nonetheless, WTO's prediction of merchandise trade volume growth of 10.8 per cent for whole of 2021 could still be realized if fourth quarter data could show a pick-up. This is possible even though the WTO's Goods Trade Barometer has signalled a cooling of trade growth in the closing months of 2021 (index dropped to 99.5 in September 2021– close to the baseline value of 100), but it still remains on trend.[1]

[1]WTO's goods trade barometer index is a leading indicator that signals changes in world trade growth two to three months ahead of merchandise trade volume statistics. Its baseline value is 100, a value greater than 100 suggests above -trend growth while a value below 100 indicates below-trend growth.

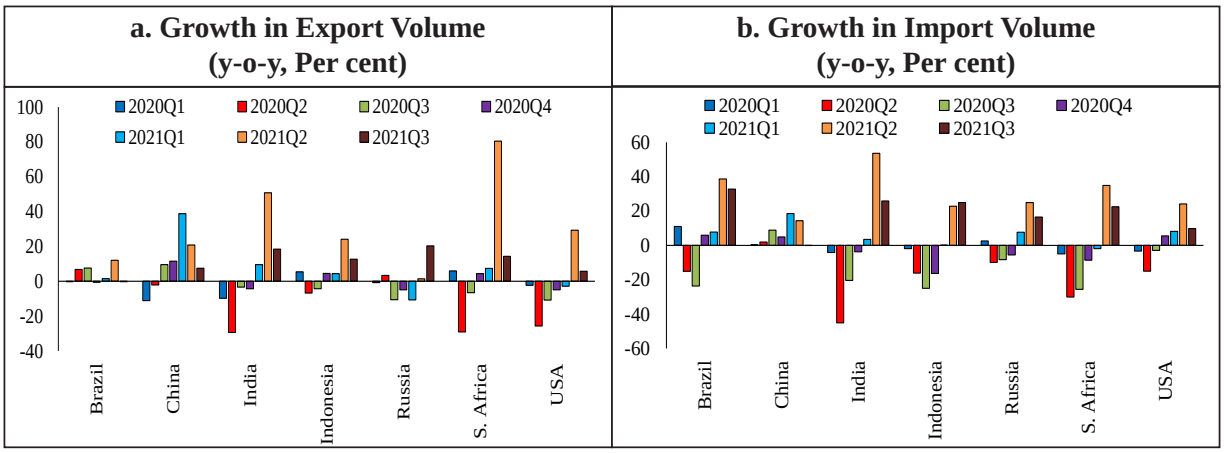
Figure 2: Moderation in World Trade Volume and Value in Q3 of 2021



Source: UNCTAD and WTO
Note: The growth rate is calculated on the basis of index with 2019Q1= 100.

3.4 The trade performance of major economies in volume and value terms during 2021 broadly reflects the generic trajectory of world trade outlined above. These major economies witnessed deceleration in Q3 on the back of a pick-up in Q1 and Q2, barring Russia in the case of exports and Indonesia for imports (Figure 3).

Figure 3: Merchandise trade performance of major economies



Source: WTO
Note: The growth rate is calculated on the basis of index with 2019Q1= 100.

3.5 The impact on trade in value terms varied significantly across different types of goods. Trade of manufacture goods, agricultural products and fuels & mining products witnessed positive and higher year-over-year (y-o-y) growth during Q2 of 2021 than in Q1, before moderating in Q3. The trade value of fuels and mining products was boosted by a four-fold rise in natural gas prices. Among manufactured goods, some sectors showed strong y-o-y increase, including iron and steel, electronic components and pharmaceuticals while others such as automotive products

and telecommunications equipment showed stagnation or decline, reflecting the recent shortage of semiconductors.

3.6 As regards global financial conditions, in 2021, inflation picked up globally as economic activity revived with opening up of economies. Inflation in US touched 6.8 per cent in November 2021, the highest since 1982, driven largely by energy and food prices. As inflation worries are mounting, a distinct shift towards the unwinding of pandemic-led stimulus is taking hold. This may result in tightening of financial conditions, adversely affecting capital flows, putting pressure on exchange rate and slowing down growth in emerging economies. Therefore, the revival in inflation across the world now poses risks from both a tighter global liquidity condition and exchange rate volatility in global currency.

3.7 Overall, the balance of risks for global trade is tilted to the downside. The biggest downside risk emanates from the pandemic itself, particularly with resurgence of new variants such as Omicron. Further, in addition to the surge in global inflation, as outlined above, longer port delays, higher freight rates, shortage of shipping containers, shortage of inputs such as semiconductors, with supply-side disruptions being exacerbated by recovery in demand, pose significant risks, *inter alia*, for global trade.

3.8 Against this backdrop, India's external sector has shown immense resilience during the year, which augurs well for growth revival in the economy.

DEVELOPMENTS IN INDIA'S MERCHANDISE TRADE

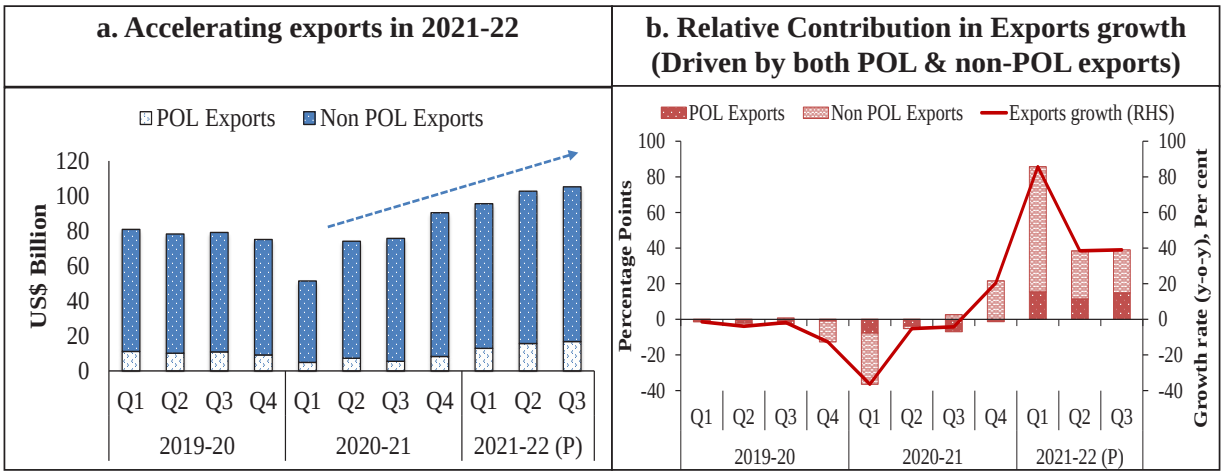
Merchandise Exports

3.9 Following the global trend, India's merchandise exports recovered strongly from the pandemic-induced collapse and registered positive growth in the current financial year. During 2021-22 (April-December), the merchandise exports recorded growth of 49.7 per cent to US$ 301.4 billion, compared to corresponding period of last year and 26.5 per cent over 2019-20 (April-December), exceeding the pre-pandemic levels.

3.10 Out of an ambitious export target of US$ 400 billion set for 2021-22, India has already attained more than 75 per cent of it by exporting goods worth US$ 301.4 billion, which is actually higher than the export target of US$ 300 billion set for the April-December period of 2021-22. This shows that India is well on track as far as attaining the export target is concerned. Sharp recovery in key markets; increased consumer spending; pent up savings and disposable income due to announcement of fiscal stimulus by major economies; global commodity price rise and an aggressive export push by the government have bolstered exports in 2021-22.

3.11 After bottoming out in Q1: FY 21, there was an impressive rebound in merchandise exports, with strong y-o-y and sequential growth, crossing a milestone of US$ 100 billion in Q2 and Q3 of 2021-22 (Figure 4a). This is remarkable in view of moderation in global trade growth, elevated shipping rates and persistent problem of container shortages.

Figure 4: India's Merchandise Exports



Source: Department of Commerce
Note: P: Provisional

3.12 The rise in exports is contributed by high growth in petroleum, oil and lubricants (POL) exports (constituting about 15 per cent of total exports) as well as non-POL exports, indicating the broad-based nature of expansion (Figure 4b). This is reflected in the fact that more than 85 per cent of major export commodity groups recorded positive growth during April-December, 2021 over April-December, 2020. Driven by robust demand for engineering goods, gems & jewellery, and chemicals, the non-POL exports stood at US$ 257.5 billion during 2021-22 (April-December), registering a growth of 40.1 per cent over corresponding period of last year and 24.9 percent over 2019-20 (April-December).

3.13 Owing to rise in global crude oil prices, petroleum products continued to be the most exported commodity in April-November 2021, whose exports have more than doubled and their share rose to 14.9 percent from 8.8 per cent in corresponding period a year earlier (Table 1). Exports of pearls, precious, semi-precious stones and gold & other precious metal jewellery have shown substantial growth of 88 per cent in April-November, 2021 compared to last year owing to various measures undertaken by Government such as reduction in import duty of precious metals, resolution of procedural issues to enhance ease of doing business along with revival in demand in major export markets. The exports of aluminium and its products is a newly added commodity in the list of top ten exported commodities during April-November, 2021.

Table 1: Top 10 Export Commodities

Rank	Commodity	(US$ Billion)				Share (in Per cent)			
		2019-20	2020-21	2020-21 (Apr-Nov)	2021-22 (P) (Apr-Nov)	2019-20	2020-21	2020-21 (Apr-Nov)	2021-22 (P) (Apr-Nov)
1	Petroleum Products	41.3	25.8	15.3	39.5	13.2	8.8	8.8	14.9
2	Pearl, Precious, Semiprecious Stones	20.7	18.1	9.8	18.1	6.6	6.2	5.6	6.8
3	Iron and Steel	9.3	12.1	7.7	15.9	3.0	4.2	4.4	6.0

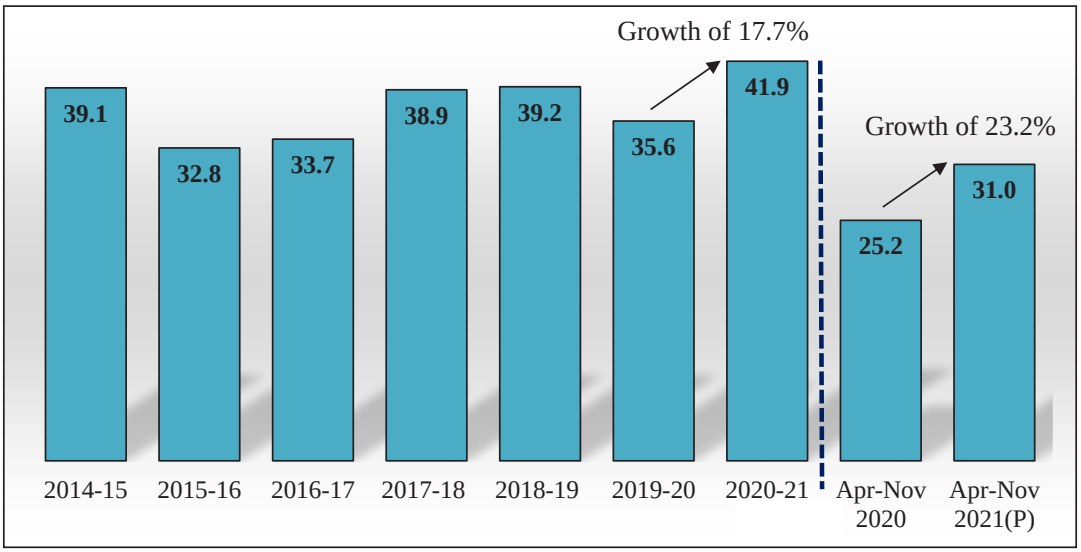
4	Drug Formulations, Biologicals	15.9	19.0	12.4	12.4	5.1	6.5	7.1	4.7
5	Gold and other precious metal jewellery	13.7	6.6	3.8	7.6	4.4	2.3	2.2	2.8
6	Organic Chemicals	8.3	7.6	4.8	7.4	2.7	2.6	2.8	2.8
7	Electric Machinery and equipment	9.0	8.1	5.1	6.4	2.9	2.8	2.9	2.4
8	Aluminium, Products of Aluminium	5.1	5.8	3.6	6.1	1.6	2.0	2.1	2.3
9	Products of Iron and Steel	7.0	6.6	3.9	5.4	2.2	2.2	2.2	2.0
10	Marine Products	6.7	6.0	4.0	5.4	2.1	2.0	2.3	2.0
Total of above 10 commodities		137.1	115.8	70.3	124.1	43.8	39.7	40.4	46.7
India's Total Exports		**313.4**	**291.8**	**174.2**	**265.7**	**100**	**100**	**100**	**100**

Source: Department of Commerce
Note: P: Provisional

3.14 Taking advantage of the increased demand for staples during the COVID-19 pandemic, India's agricultural exports continue to do well in 2021-22, backed by an effective agriculture export policy. The export of agriculture and allied products (including marine and plantation products) grew by 23.2 per cent to US$ 31.0 billion during April-November, 2021 over the corresponding period of 2020-21 and by 35.0 per cent over April-November, 2019, surpassing the pre-pandemic levels (Figure 5). The list of top 10 agricultural export commodities during 2021-22 (April-November) is indicated at Annexure I.

3.15 Pro-active support of export promotion agencies including Export Inspection Council (EIC), Agricultural & Processed Food Products Export Development Authority (APEDA) and export facilitating measures like online issuance of certificates required for exports, aided growth of agricultural exports during the pandemic. Under Transport and Marketing Assistance (TMA) for specified agriculture products scheme, the rates of assistance were increased for the exports effected on or after 01.04.2021. Ministry of Civil Aviation launched the Krishi UDAN (Ude Desh ka Aam Nagarik) scheme in August 2020 to assist farmers in transporting agricultural products on international and national routes to improve their value realisation.

Figure 5: Agricultural Exports (US$ Billion)

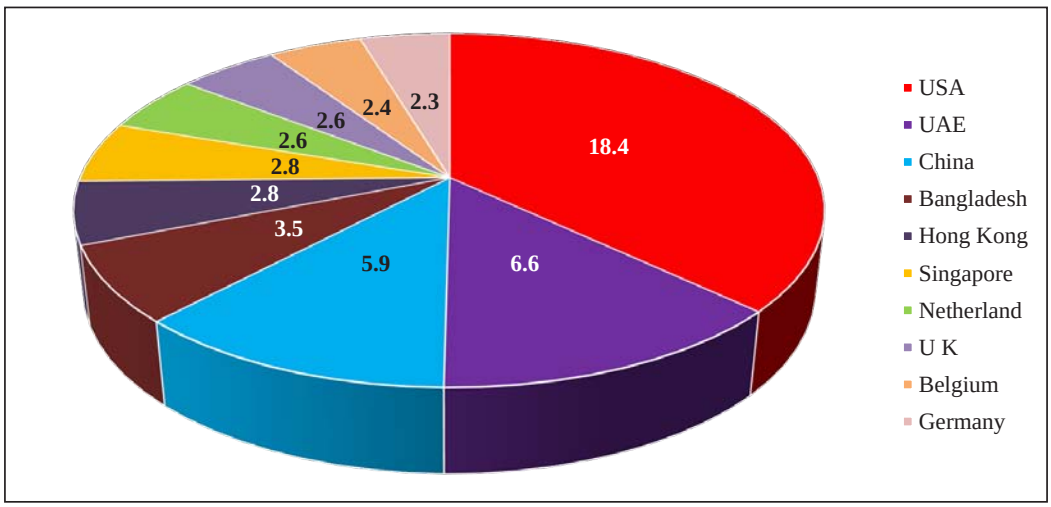


Source: Department of Commerce
Note: P: Provisional

3.16 It is observed that even the segments like marine products, buffalo meat, tea, coffee and dairy products, which had not performed well during 2020-21, have registered substantial growth during the current year. This augurs well for further diversification and strengthening of agricultural exports in the coming years.

3.17 United States of America (USA) remained the top export destination in April-November, 2021 followed by United Arab Emirates (UAE) and China (Figure 6). Belgium has replaced Malaysia and entered into the top ten leading export destinations during April-November 2021, with more than a billion dollars' worth of pearls, precious and semi-precious stones, and iron and steel shipped to the country.

Figure 6: Top ten Export Destinations in 2021-22 (April- November) [By Share in Per cent]



Source: Department of Commerce

3.18 India has diversified its export destinations in last 25 years, yet more than 40 per cent of India's exports is still accounted by only seven countries. India has been negotiating free trade

agreements (FTAs) with several partners – both bilateral and regional – over the past many years with a view to promote India's exports. A further push in this direction would help provide the institutional arrangements to, *inter alia*, diversify both products and destinations.

Progress on Trade Agreements

3.19 During last few years, India has initiated its trade agreement negotiations and reviewed existing agreements with many countries. This *inter alia* includes negotiations for (i) Comprehensive Economic Cooperation Agreement (CECA) between India and Australia (ii) FTA with European Union (EU) (iii) Comprehensive Economic Partnership Agreement (CEPA) with Canada and (iv) CEPA with UAE. In addition, India is reviewing its existing trade agreements such as the CECA with Singapore and ASEAN-India Trade in Goods Agreement (AITIGA) with ASEAN, among others. Negotiations are complete for agreement with UAE and at advance stage with Australia.

3.20 Further, India launched the FTA negotiations with the UK on 13th January, 2022, which is expected to facilitate the target of doubling bilateral trade by 2030, set by the Prime Ministers of both the nations in May 2021. Under India-US Trade Policy Forum (Ministerial), discussions were held with the US delegation on 6th October 2021 regarding Social Security Agreement, Mutual Recognition Agreements (MRAs) in nursing services and accountancy services, and mobility issues concerning Indian professionals.

Major Schemes & Initiatives to boost exports

3.21 The impressive performance of India's exports may be attributed to various schemes and initiatives taken by the Government to boost exports and to reduce the adverse impact of COVID-19. Some of these schemes are as under:

i. **Remission of Duties and Taxes on Exported Products (RoDTEP):** In order to boost Indian exports, a WTO compliant RoDTEP scheme is brought into effect from 01.01.2021. Based on the globally accepted principle that taxes and duties should not be exported, this scheme is an improvement over Merchandise Exports from India Scheme (MEIS). This new scheme reimburses currently un-refunded Central, State, and Local taxes and duties incurred in the process of manufacture and distribution of exported products and thereby provides a level playing field to domestic industry abroad. Major components of taxes covered are electricity duty, value-added tax (VAT) on fuels used in transportation/ distribution, mandi tax, stamp duty, etc.

ii. **Developing District as Export Hub:** Under this initiative, the focus is to make districts active stakeholders in the promotion of exports of goods/services produced/ manufactured in the district. District Export Promotion Committees (DEPCs) have been set up in each district. Products with export potential (including agricultural, geographical indication (GI) & toy clusters) have been identified in all 739 districts across the country. This scheme would help in diversifying the portfolio of export commodities.

iii. **Production-Linked Incentive (PLI) scheme:** An outlay of ₹1.97 lakh crore (US$ 26 billion) was announced in Union Budget 2021-22 for Production-Linked Incentive (PLI)

scheme for 14 key sectors starting from 2021-22. The scheme provides incentives to companies on incremental sales for products manufactured in domestic units, which is expected to create minimum production of over US$ 500 billion in 5 years. Automobiles and auto components, pharmaceutical drugs, telecom & networking products, electronic/ technology products, etc., are some of the sectors covered under PLI scheme. The scheme is expected to give a push to both domestic manufacturing capabilities and exports. *(Refer to Industry and Infrastructure Chapter for details)*

iv. **Electronic Platform for Preferential Certificate of Origin (CoO):** In view of the COVID-19 crisis, on-boarding of FTAs/ preferential trade agreements (PTAs) was quickly done to allow electronic issuance to avoid physical movement. Around 4.6 lakh CoOs have been issued from the e-platform till date.[2] Issuance of Non-Preferential CoOs was also started from 15.04.2021.

v. **Infusion of capital in EXIM Bank:** Government of India infused capital of ₹750 crore in Export-Import Bank of India (EXIM Bank) during the current financial year 2021-22 through subscription to its share capital.

vi. **Export Credit Guarantee Corporation of India Ltd. (ECGC)** provides insurance cover to banks against risks in export credit lending to the exporter borrowers. Government approved capital infusion of ₹4,400 crore to ECGC Ltd. over a period of five years, i.e. from 2021-2022 to 2025-2026. This will increase the capacity of ECGC to underwrite risks up to ₹88,000 crore, that will support additional exports of ₹5.28 lakh crore over the five-year period.

vii. **Export Promotion Capital Goods (EPCG) Scheme** is an ongoing scheme under the foreign trade policy. In order to increase procurement of capital goods from indigenous manufacturers under the EPCG scheme, the government has reduced specific export obligations from 90 per cent to 75 per cent of the normal export obligation.

viii. The export promotion schemes such as Trade Infrastructure for Export Scheme (TIES), Market Access Initiatives (MAI), Special Economic Zone (SEZ) scheme, Emergency Credit Line Guarantee Scheme (ECLGS) and Advance Authorization Scheme continue to provide support to trade infrastructure and marketing.

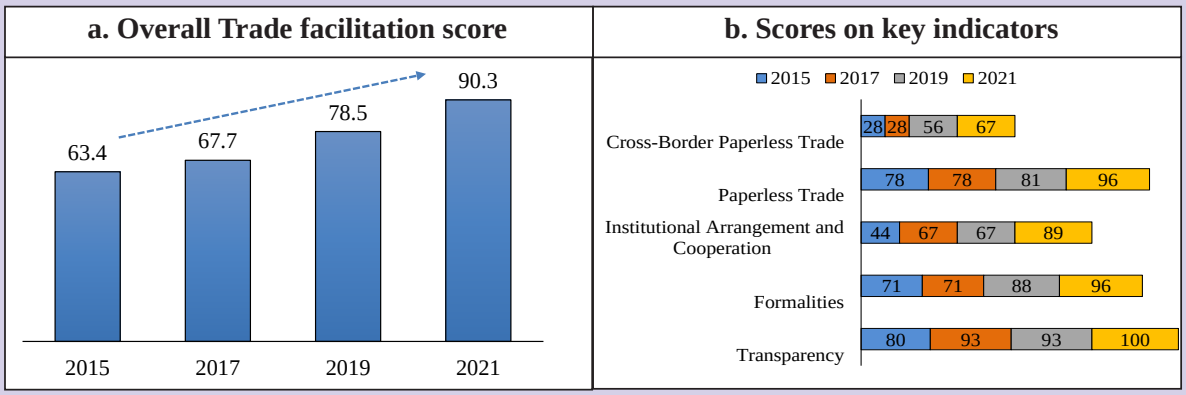
Box 1: Enabling an efficient Logistics eco-system to boost exports

An efficient, competitive and resilient logistics ecosystem is pivotal to boost exports. Despite multiple challenges, India has made substantial progress in trade-related logistics, reflected in leading global indices. India scored 90.3 per cent in 2021 in United Nations Economic and Social Commission for Asia Pacific's (UNESCAP) latest Global Survey on Digital and Sustainable Trade Facilitation, a remarkable jump from its score of 78.5 per cent in 2019, on account of improvement in scores of five key indicators. The Survey notes that India is the best performing country when compared to South and South West Asia region (63.1 per cent) and Asia Pacific region (65.9 per cent).

India witnessed consistent and significant increase in its overall trade facilitation score since 2015, supported by continuous improvement in each of the five indicators (Figure B1.1). Transparency index got 100 per cent score in 2021, while paperless trade and formalities got 96 per cent.

[2]A non-preferential COO certifies the origin of the goods but does not grant any preferential tariff rights to the exporter.

Figure B1.1: Performance of India in Global Survey on Digital and Sustainable Trade Facilitation



Source: UNESCAP

Pradhan Mantri Gati Shakti National Master Plan (NMP)

Approved in October 2021, PM Gati Shakti NMP aims to provide multimodal connectivity to various economic zones and integrate the infrastructure linkages holistically for seamless movement of people, goods & services to improve logistics efficiency. Gati Shakti will bring 16 Ministries together for integrated planning and coordinated implementation of infrastructure connectivity projects like Bharatmala, Sagarmala, inland waterways, UDAN etc. It will also leverage technology extensively including spatial planning tools with ISRO imagery developed by BiSAG-N (Bhaskaracharya National Institute for Space Applications and Geoinformatics). Economic zones like textile clusters, pharmaceutical clusters, electronic parks, etc. will be covered to make Indian businesses more competitive globally by cutting down the logistics costs and ensure proper linkages for local industry & consumers. This will boost economic growth, attract foreign investment and create multiple employment opportunities. *(Refer Box 7 in Industry and Infrastructure chapter)*

Other Initiatives to improve logistics ecosystem

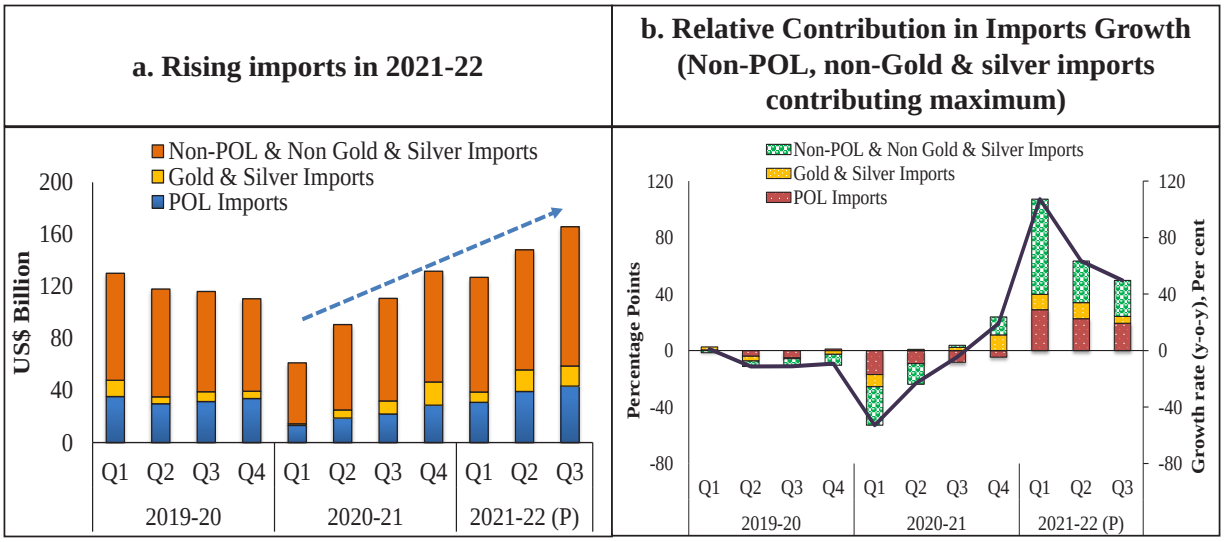
Government has taken various steps in last few years to improve logistics efficiency through infrastructure enhancement and process reforms. Some of them include introduction of FASTag, Turant Customs, mandatory RFID (Radio Frequency Identification) tagging at all EXIM bound containers, E-San chit, Indian Customs Enquiry for Trade Assistance and Knowledge (ICETRAK), ICEDASH (Indian Customs EDI Dashboard), Secured Logistics Document Exchange (SLDE), Import Clearance System, GHG Calculator etc. In order to ease maritime trade, efforts are being undertaken on development of port-specific master plans and a coordination mechanism for implementation of the same, upgradation of select Land Customs Stations (LCS) to Integrated Check Posts (ICPs), promoting Free Trade Warehousing Zones, etc.

Merchandise Imports

3.22 As the pandemic ebbed, India witnessed revival in domestic demand resulting in strong import growth. The merchandise imports grew at the rate of 68.9 per cent to US$ 443.8 billion in April-December, 2021 over the corresponding period of last year and 21.9 per cent over April-December, 2019, crossing the pre-pandemic levels. Like in the case of merchandise exports,

imports also showed secular rise since Q1: FY 21 and reached about US$ 166 billion in Q3: FY 22, crossing the pre-COVID levels (Figure 7a).

Figure 7: India's Merchandise Imports



Source: Department of Commerce
Note: P: Provisional

3.23 The expansion recorded in merchandise imports in April-December, 2021 is accounted by the positive growth in all the three components i.e. gold & silver imports (accounting for 9.1 per cent share in total imports), POL imports (26.6 per cent share) and non-POL, non-Gold & silver imports (64.3 per cent share), with latter contributing the maximum indicating acceleration in domestic activity (Figure 7b). It is observed that more than 93 per cent of major import commodities have registered positive growth in April-December, 2021 compared to last year, indicating a broad-based recovery in the economy.

3.24 Owing to significant rise in crude oil prices, POL imports rose by 119.2 percent to US$ 118.3 billion in April-December, 2021 over corresponding a year earlier and by 22.3 per cent compared to April-December, 2019. The crude oil price (Indian basket) surpassed the pre-COVID level and was as high as US$ 82.1 per barrel in October 2021. On the other hand, the volume of POL imports rose higher than last year, but remained below the pre-pandemic levels. Gold and silver imports more than doubled to US$ 40.0 billion, as against US$ 17.5 billion in corresponding period a year earlier and surpassed the pre-pandemic level of US$ 25.4 billion recorded in April-December, 2019.

3.25 Non-POL, non-gold & silver imports were US$ 285.5 billion in April-December, 2021, witnessing a positive growth of 49.3 percent compared to corresponding period of last year and 17.9 percent over April-December, 2019. Electronic goods; pearls, precious & semi-precious stones; and coal, coke & briquettes, etc., contributed maximum in the non-POL, non-gold & silver import growth in the said period.

3.26 Among major import commodities, crude petroleum imports more than doubled to US$ 73.3 billion in April-November, 2021 compared to last year and continues to be the highest imported commodity. Gold imports registered sharp rise to US$ 33.2 billion (8.7 per cent share), from US$ 12.3

billion (5.6 per cent share) in corresponding period a year earlier, returning to second position (Table 2). This is due to significant increase in volume of gold imports that have more than tripled compared to last year and surpassed the pre-pandemic levels, on account of strong festive and export demand, favoured by drop in international gold prices. Industrial machinery for dairy and Iron & Steel do not figure in the list of top ten import commodities in current year, unlike in April-November, 2019.

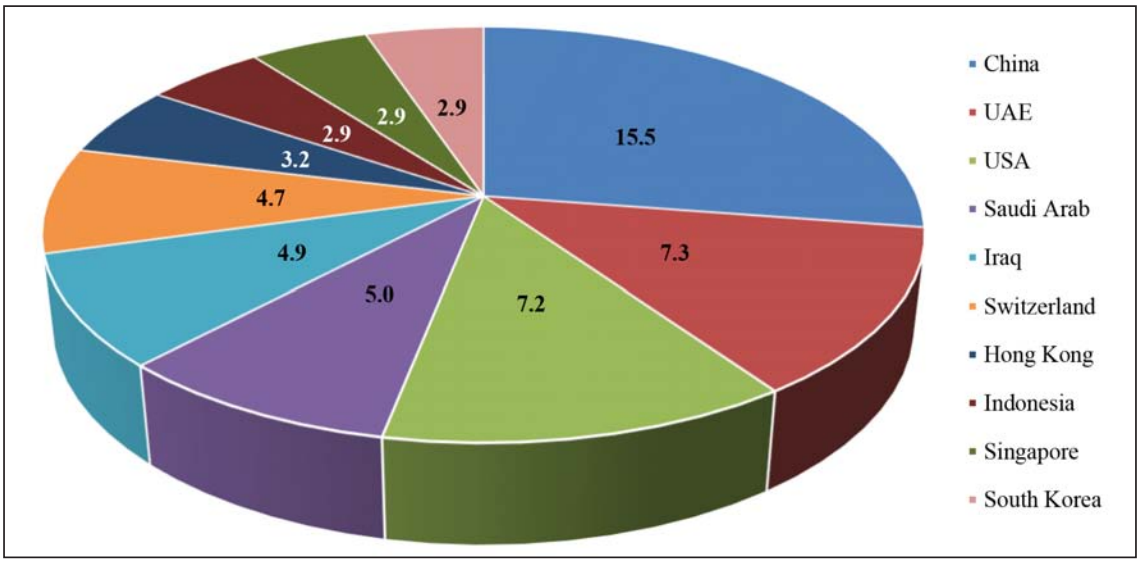
Table 2: Top 10 Import Commodities

Rank	Commodity	(US$ Billion)				Share (in Per cent)			
		2019-20	2020-21	2020-21 (Apr-Nov)	2021-22 (P) (Apr-Nov)	2019-20	2020-21	2020-21 (Apr-Nov)	2021-22 (P) (Apr-Nov)
1	Petroleum: Crude	102.7	59.5	31.3	73.3	21.6	15.1	14.2	19.2
2	Gold	28.2	34.6	12.3	33.2	5.9	8.8	5.6	8.7
3	Petroleum Products	27.8	23.2	13.1	24.1	5.9	5.9	5.9	6.3
4	Pearl, Precious, Semiprecious Stones	22.5	18.9	9.3	19.2	4.7	4.8	4.2	5.0
5	Coal, Coke and Briquittes, etc.	22.5	16.3	9.7	18.9	4.7	4.1	4.4	4.9
6	Electronics Components	16.3	15.3	8.7	14.5	3.4	3.9	4.0	3.8
7	Vegetable Oils	9.7	11.1	6.8	12.2	2.0	2.8	3.1	3.2
8	Organic Chemicals	12.2	11.1	6.3	11.2	2.6	2.8	2.9	2.9
9	Computer Hardware, Peripherals	9.0	10.4	6.6	9.7	1.9	2.6	3.0	2.6
10	Plastic Raw Materials	10.4	9.7	5.2	9.5	2.2	2.5	2.4	2.5
Total of above 10 commodities		261.3	210.1	109.3	225.9	55.0	53.3	49.7	59.2
India's Total Imports		**474.7**	**394.4**	**219.8**	**381.4**	**100**	**100**	**100**	**100**

Source: Department of Commerce
Note: P: Provisional

3.27 Among the top ten countries for import origin, China, UAE and USA were the top import sources for India in April-November, 2021, with China's share reducing to 15.5 per cent from 17.7 per cent in corresponding period a year earlier – reflecting increased diversification of India's import sources. Switzerland, which was ousted last year from top ten sources of India's import, bounced back at sixth position with a share of 4.7 percent in April-November, 2021. Indonesia – second biggest source of crude palm oil – remains to be one of top ten suppliers of India, with a share of 2.9 percent in total imports during same period (Figure 8).

Figure 8: Top ten Import Sources in 2021-22 (April-November) [By Share in Per cent]

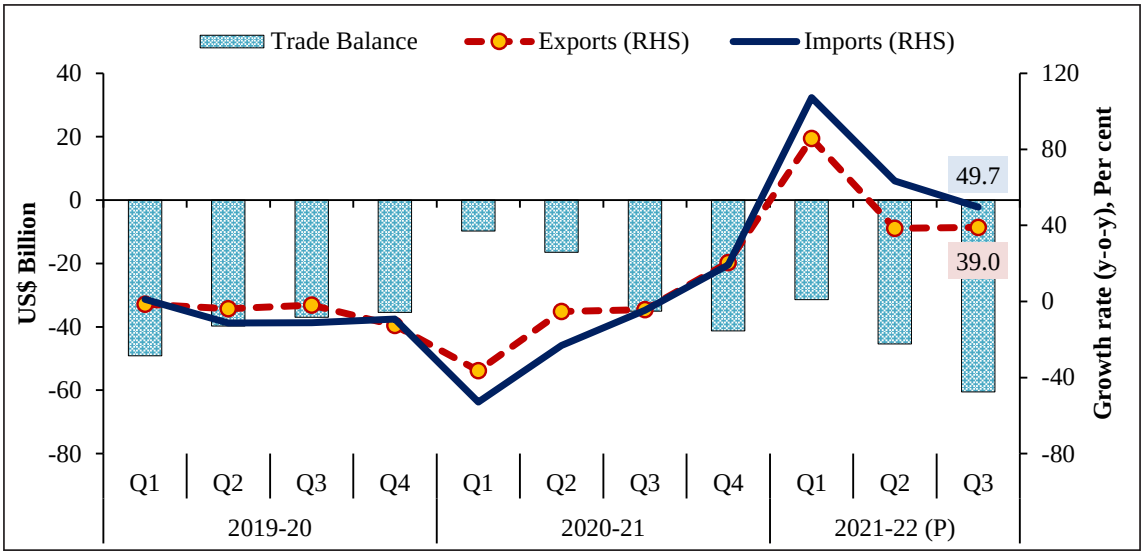


Source: Department of Commerce

Merchandise Trade Balance

3.28 As enumerated above, owing to the recovery of global demand with a revival in domestic activity as well as in many trading partners, both the merchandise exports as well as imports rebounded strongly and surpassed pre-pandemic levels leading to an increase in merchandise trade deficit. It stood at US$ 142.4 billion in April-December, 2021 compared to deficit of US$ 61.4 billion in corresponding period of last year and US$ 125.9 billion in April-December, 2019. The merchandise trade deficit widened after bottoming out in Q1: FY 21 (Figure 9).

Figure 9: Increasing Merchandise Trade Balance due to high growth in exports and imports



Source: Department of Commerce
Note: P: Provisional.

3.29 Table 3 shows India's merchandise trade balance with major countries during 2021-22 (April-November) compared to 2020-21 (April-November). India had the most favourable trade balance with USA followed by Bangladesh and Nepal.

Table 3: India's Merchandise Trade Balance with Major Countries

(US$ Billion)

S. No	Country	Exports		Imports		Trade Balance	
		Apr-Nov 20	Apr-Nov 21 (P)	Apr-Nov 20	Apr-Nov 21 (P)	Apr-Nov 20	Apr-Nov 21 (P)
1	U S A	31.3	49.0	16.3	27.4	15.0	21.6
2	Bangladesh	5.1	9.2	0.6	1.3	4.4	7.9
3	Nepal	3.5	6.0	0.4	1.0	3.1	5.0
4	Turkey	2.3	5.1	0.9	1.3	1.4	3.8
5	Netherland	3.8	6.9	1.9	2.8	1.9	4.1
6	U K	4.6	6.8	2.6	4.3	2.0	2.5
7	Italy	2.6	5.4	2.2	3.2	0.4	2.1
8	Korea	2.9	4.8	7.1	11.1	-4.2	-6.3
9	Qatar	0.8	1.2	4.6	7.7	-3.8	-6.5
10	U A E	9.7	17.5	13.1	27.9	-3.4	-10.4
11	Saudi Arab	3.6	5.8	9.2	19.2	-5.6	-13.4
12	Iraq	1.0	1.3	7.6	18.5	-6.6	-17.2
13	Switzerland	0.9	0.9	5.8	17.8	-4.9	-16.9
14	China	13.6	15.6	38.8	59.0	-25.2	-43.4

Source: Department of Commerce
Note: P: Provisional

TRADE IN SERVICES

Services Exports

3.30 India has maintained its impressive performance in world services trade in the post COVID-19 period. Despite pandemic induced global restrictions and weak tourism revenues, India's services exports recorded growth of 18.4 per cent to US$ 177.7 billion during 2021-22 (April-December), over corresponding period a year earlier (Table 4) and 11.0 per cent growth over 2019-20 (April-December), surpassing the pre-pandemic levels.[3] This is mainly on account of top three computer, business and transportation services that constitute more than 80 per cent of total services exports. After registering a slump in Q1: FY 21, services exports remained resilient since Q2: FY 21 onwards and rose consistently to reach to US$ 60 billion in Q3: FY 22 (Figure 10).

Table 4: Services Trade Performance

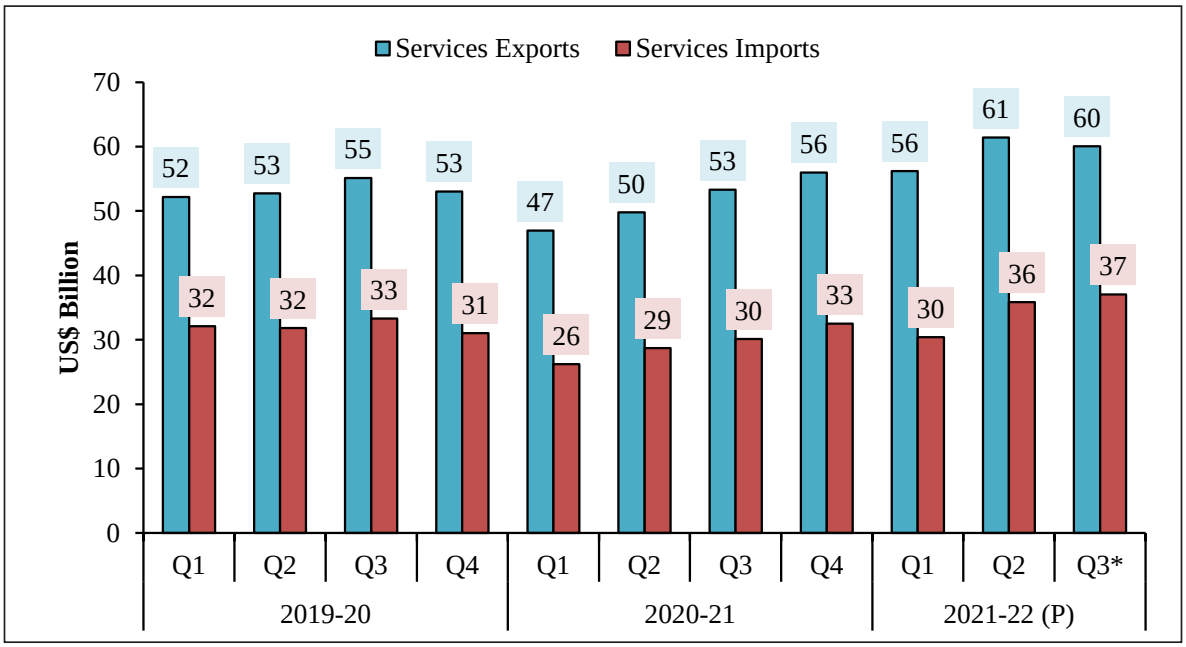
(US$ Billion)

	2019-20	2020-21	2020-21 (Apr-Dec)	2021-22 (Apr-Dec)* (P)
Services Exports	213.2	206.1	150.1	177.7
Services Imports	128.3	117.5	85.0	103.3

Source: Reserve Bank of India and Department of Commerce
Note: *: The data for December 2021 is an estimation; P: Provisional

[3]The data for December 2021 is an estimation, which will be revised based on RBI's subsequent release. The latest data for services sector released by RBI is till November 2021.

Figure 10: Rising Services Exports and Imports



Source: Reserve Bank of India and Department of Commerce
Note: *: Based on estimates; P: Provisional

3.31 Computer services exports continue to be the largest exported service in H1: FY 22, constituting about 49 per cent of total services exports. They exhibited positive sequential growth since Q2: FY 21 on account of increasing demand for digital support, cloud services and infrastructure modernisation owing to new pandemic challenges. Exports of business services – the second major segment – also showed recovery underpinned by improvement in professional, management and consultancy services. The transportation services exports grew by 40.7 per cent in H1: FY 22 to US$ 14.3 billion due to increase in cross-border trade activity and the shortage in shipping containers impacting transport costs. The quarterly component-wise services exports data is presented in Annexure II.

3.32 The strong growth witnessed in services exports may also be attributed to key reforms undertaken by Government, which *inter alia* include liberalizing the Other Service Providers (OSPs) in November 2020 and further in June 2021 announcing reform package for Telecom sector to infuse liquidity, encourage investment and reduce regulatory burden on the telecom service providers. *(Refer Box in Chapter on Services)*

Services Imports

3.33 Services imports rose by 21.5 per cent to US$ 103.3 billion in 2021-22 (April-December) from the corresponding period a year earlier (Table 4) and 6.2 per cent over 2019-20 (April-December), crossing the pre-pandemic levels.[4] The surge in services imports is mainly on account of payments for business, transport, travel and computer services, which together constitute more than 75 per cent of services imports. Like in the case of services exports, India's imports of services also reported slowdown in Q1: FY 21 due to pandemic induced lockdown. However, they improved subsequently and touched US$ 37 billion in Q3: FY 22 (Figure 10).

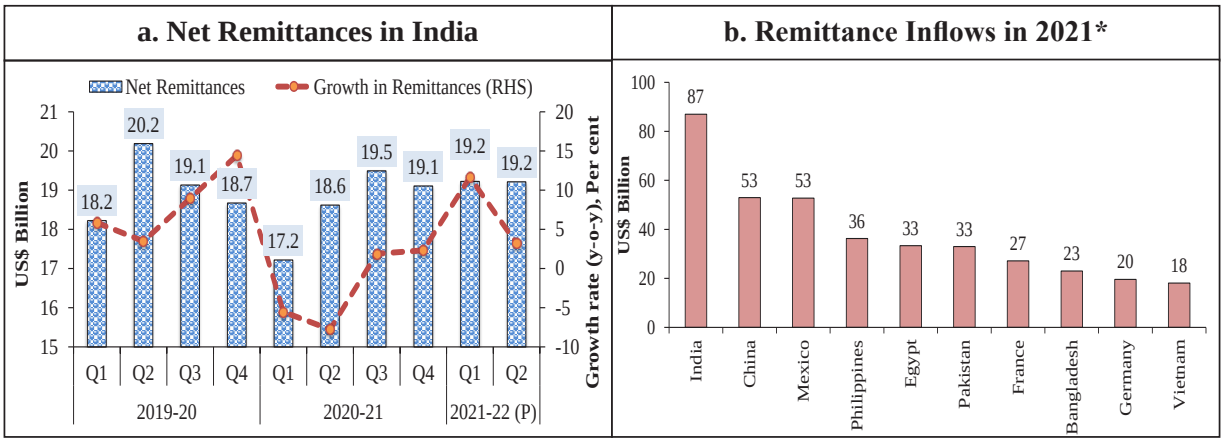
[4]The data for December 2021 is an estimation, which will be revised based on RBI's subsequent release. The latest data for services sector released by RBI is till November 2021.

3.34 Business services with the largest share in services imports grew by 0.9 per cent on y-o-y basis in H1: FY 22. Amid resumption in global activity coupled with international shortage in shipping vessels, transportation costs escalated, resulting in large increase in transport payments that grew by 64.9 per cent on y-o-y basis to US$ 14.8 billion in H1: FY 22. Outward travel also resumed in H1: FY 22 with travel payments reporting growth of 23.1 per cent compared to H1: FY 21. The quarterly component-wise services imports data is presented in Annexure III.

PRIVATE TRANSFERS

3.35 In H1: FY 22, the net private transfers – mainly representing remittances by Indians employed overseas – grew by 7.2 per cent to US$ 38.4 billion, over corresponding period a year earlier and by modest 0.1 per cent over H1: FY 20, exceeding the pre-pandemic levels. As per the Migration and Development Brief 35, World Bank (November 2021), India continues to be the largest remittance recipient country in the world in 2021 (in current US dollar terms) and has been so since 2008. After bottoming out in Q1: FY 21, net private transfers registered positive growth and amounted to US$ 19.2 billion in Q2: FY 22 (Figure 11).

Figure 11: Remittances



Source: Reserve Bank of India and World Bank
Note: *: Estimates

INVISIBLES

3.36 On account of higher net services receipts and private transfers, net invisibles were higher at US$ 72.1 billion in H1: FY 22, compared to US$ 60.1 billion last year (Table 5) and US$ 63.7 billion in H1: FY 20, surpassing the pre-COVID levels. Following the trend of services and transfers, net invisibles also experienced increase beyond Q1: FY 21. However, there is sequential decline in Q2: FY 22 due to higher net outgo from the primary income account, mainly reflecting net overseas investment income payments (Figure 12).

Table 5: Net Invisibles and its components

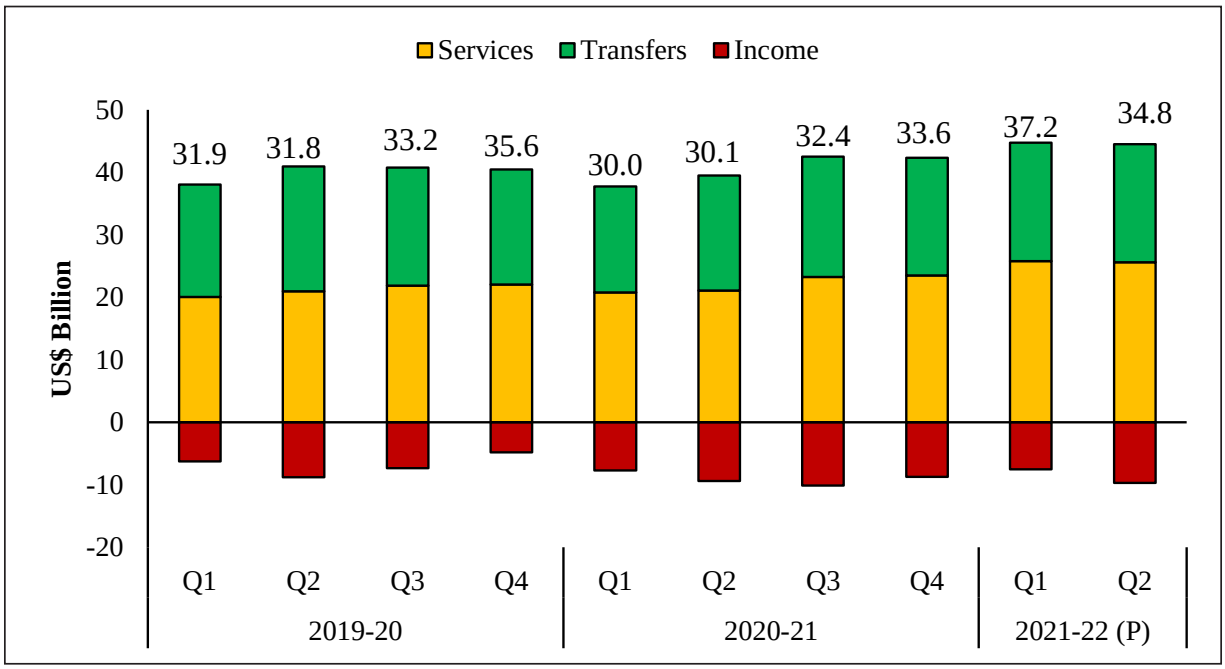
(US$ Billion)

Year / Item (Net)	2019-20	2020-21	2020-21 H1	2021-22 H1 (P)
Invisibles	132.8	126.1	60.1	72.1
Services	84.9	88.6	41.8	51.4

Transfers	75.2	73.5	35.4	37.9
Income	-27.3	-36.0	-17.1	-17.2

Source: RBI
Note: P: Provisional

Figure 12: Composition of Net Invisibles



Source: RBI
Note: P: Provisional

CURRENT ACCOUNT BALANCE

3.37 After witnessing a surplus in H1: FY 21, India's current account balance flipped into deficit of US$ 3.1 billion (0.2 per cent of GDP) in H1: FY 22, on the back of sharp increase in merchandise trade deficit (Table 6). However, this current account deficit remained lower than the deficit of US$ 22.6 billion recorded in H1: FY 20 (pre-pandemic level).

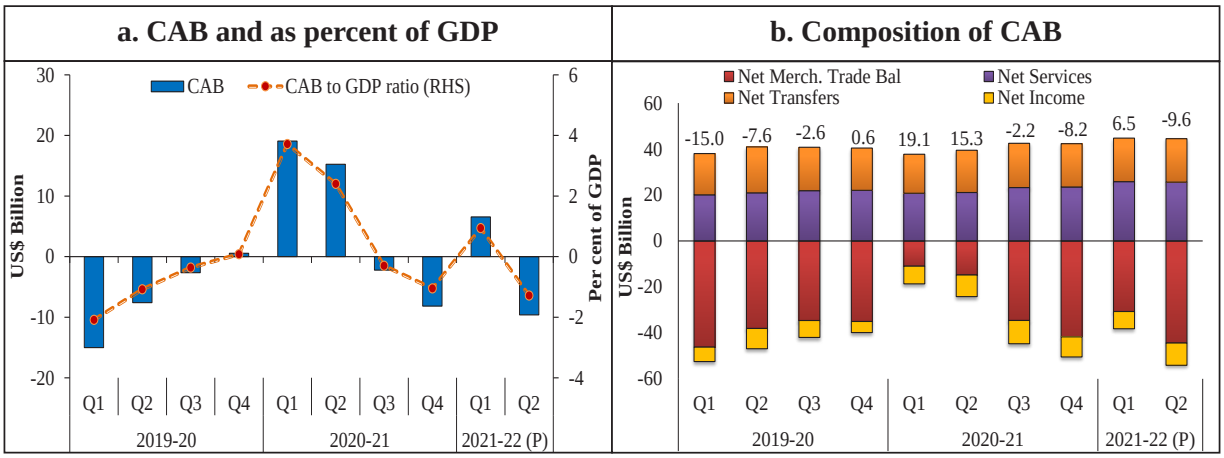
3.38 As far as quarterly movement is concerned, the current account balance switched into a deficit in Q2: FY 22 from surplus in the previous quarter, due to widening of trade deficit and an increase in net outgo of investment income (Figure 13).

Table 6: Current Account Balance

Year/ Item (Net)	2019-20	2020-21	2020-21 H1	2021-22 H1 (P)
Current Account Balance (US$ Billion)	-24.7	23.9	34.3	-3.1
Current Account Balance as per cent of GDP	-0.9	0.9	3.0	-0.2

Source: Reserve Bank of India
Note: P: Provisional

Figure 13: Current Account Balance (CAB)



Source: RBI
Note: P: Provisional

CAPITAL ACCOUNT/ FINANCIAL ACCOUNT

3.39 In H1: FY 22, net capital flows more than tripled to US$ 65.6 billion (4.5 per cent of GDP) over those in H1: FY 21, on the back of continued inflow of foreign investment, rise in loans mainly external commercial borrowings (ECBs), banking capital and other capital (inclusive of SDR allocation of US$ 17.9 billion by the IMF) (Table 7). These were also higher than the corresponding period of pre-pandemic level (H1: FY 20).

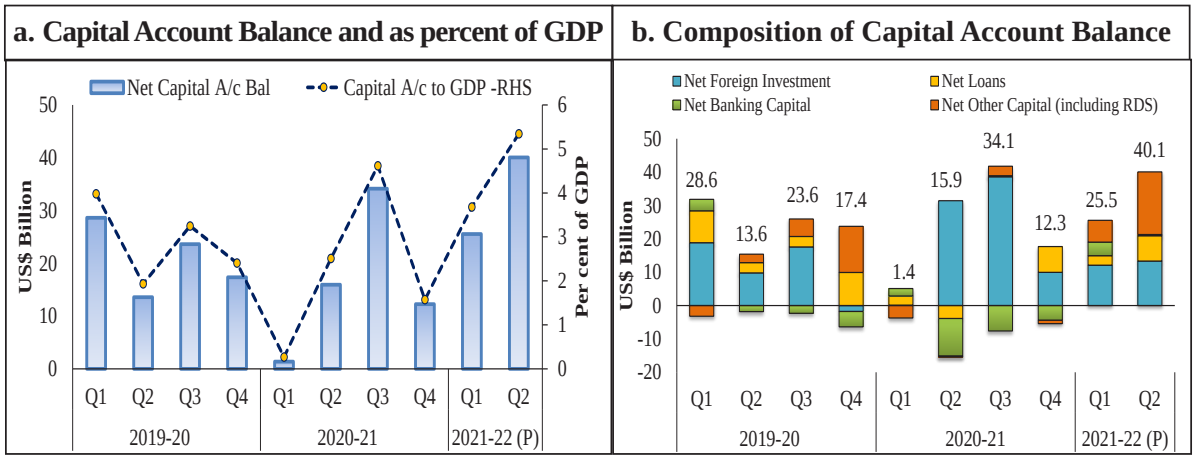
3.40 Net capital flows remained volatile yet witnessed y-o-y and sequential growth in both quarters of 2021-22. While the capital flows rose in Q1: FY 22 mainly on account of robust foreign direct investment on y-o-y basis, it increased further in Q2: FY 22 mainly due to the increase in FPI, ECBs and allocation of special drawing rights (SDR) by IMF, reflected in notable rise in net other capital (Figure 14).

Table 7: Capital Account Balance

				(US$ Billion, unless otherwise indicated)	
S.No.	**Year / Item (Net)**	**2019-20**	**2020-21**	**2020-21 H1**	**2021-22 H1 (P)**
A.	Capital Account (A1 to A5)	83.2	63.7	17.3	65.6
A1.	Foreign Investment	44.4	80.1	31.5	25.4
A1.1	Foreign Direct Investment (FDI)	43.0	44.0	23.9	21.2
A1.2	Foreign Portfolio Investment (FPI)	1.4	36.1	7.6	4.3
A2.	Loans	25.7	6.9	-1.1	10.4
A3.	Banking Capital	-5.3	-21.1	-9.0	4.4
A4.	Rupee Debt Service	-0.1	-0.1	-0.1	-0.1
A5.	Other Capital	18.5	-2.1	-4.0	25.4
B.	Capital Account Balance to GDP ratio (Percent)	2.9	2.4	1.5	4.5

Source: Reserve Bank of India
Note: P: Provisional

Figure 14: Capital Account Balance and its ratio to GDP

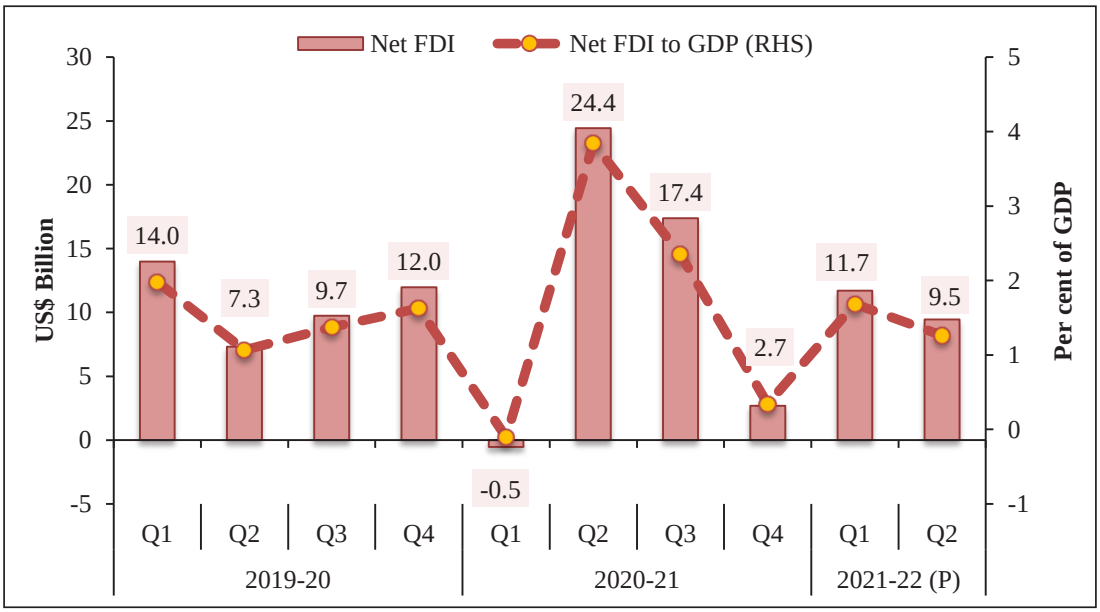


Source: RBI
Note: RDS: Rupee Debt Service; P: Provisional

3.41 Foreign Investment, consisting of foreign direct investment (FDI) and foreign portfolio investment (FPI), is the largest component of the capital account. Falling short of the pre-pandemic level, the net foreign investment inflows (FIIs) – primarily driven by FDI – moderated to US$ 25.4 billion in H1: FY 22 compared to corresponding period of FY 21.

3.42 The latest aggregate data on FDI is available till November 2021. While net FDI recorded a lower inflow of US$ 24.7 billion, the gross FDI inflows moderated at US$ 54.1 billion during April-November, 2021 compared to corresponding period last year, largely due to lower equity investment. The quarterly movement may be seen at Figure 15.

Figure 15: Foreign Direct Investment



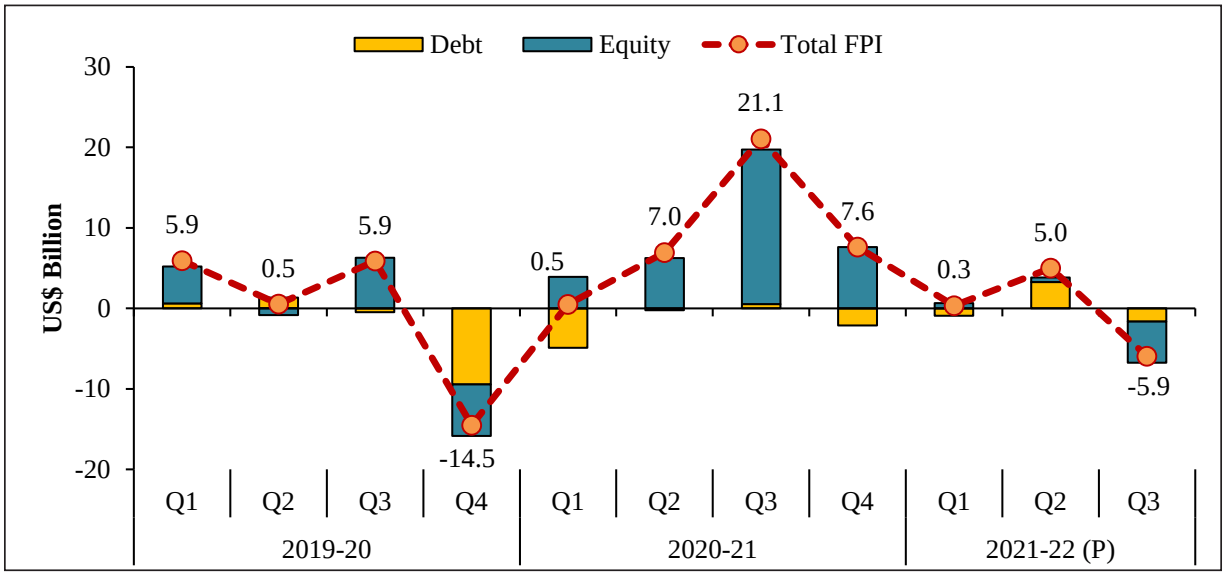
Source: RBI
Note: P: Provisional

3.43 As far as sector-wise FDI inflows are concerned, computer software and hardware attracted the highest FDI equity inflows of US$ 7.1 billion in April-September, 2021. Singapore continues

to be the top investing country in terms of FDI equity inflow while USA occupies the second position. The list of top five FDI sectors and investing countries is given in Annexure IV.

3.44 The latest aggregate data on FPI is available till December 2021. As depicted in Figure 16, FPI flows remained volatile due to global uncertainties relating to US monetary policy normalisation, rising global energy prices, fear of new variants of COVID-19 and strong inflationary pressures. While the debt market witnessed net purchases during April-December, 2021, valuation concerns and profit booking by portfolio investors led to outflows from the Indian equity market, leading to net FPI outflow of 0.6 billion, vis-à-vis net FPI inflow of US$ 28.5 billion in corresponding period a year earlier.

Figure 16: Foreign Portfolio Investment remained volatile



Source: National Securities Depository Limited (NSDL).
Note: (i) Total net FPI is summation of debt, equity, hybrid and voluntary retention route (VRR), however, only debt and equity are depicted in above chart as they together account for more than 90 per cents of the total net FPI. Balance is hybrid and VRR.
(ii) P: Provisional

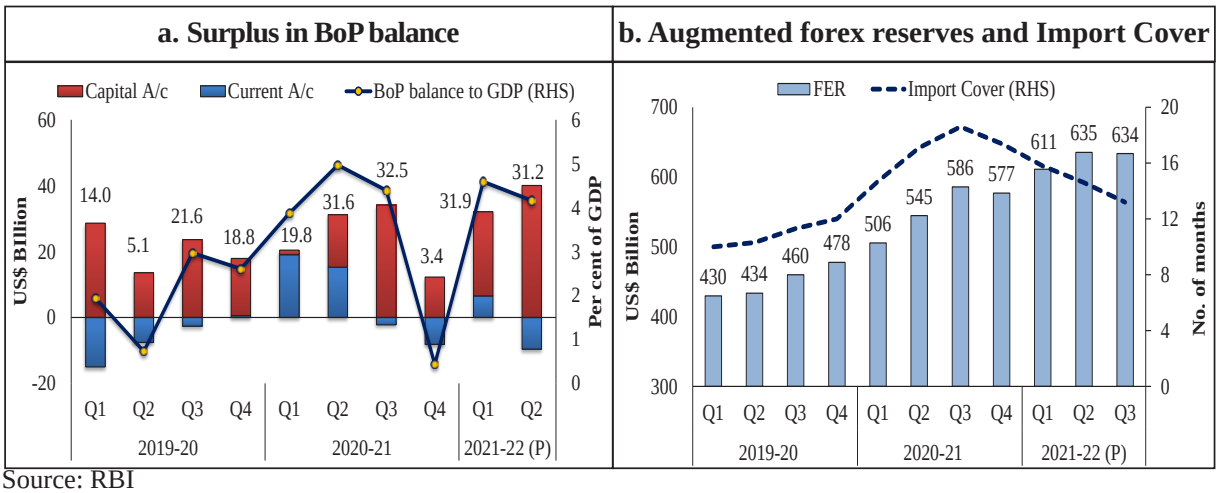
3.45 Among other forms of capital flows, banking capital recorded net inflow of US$ 4.4 billion in H1: FY 22 as compared with a net outflow of US$ 9.0 billion in corresponding period a year earlier, notwithstanding lower net inflows under Non-Resident Indian (NRI) deposit accounts. With fresh disbursals exceeding repayments, net disbursement of ECBs (i.e., adjusted for inter-corporate borrowing) was at US$ 4.7 billion in H1: FY 22.

BOP BALANCE AND FOREIGN EXCHANGE RESERVES

3.46 As elaborated earlier, India's current account balance switched into a deficit in H1: FY 22 on the back of widening of trade deficit, reflecting amongst other reasons, a broad-based revival of aggregate demand. However, this current account deficit (CAD) was adequately cushioned by robust capital flows, resulting into an overall balance of payments (BoP) surplus of US$ 63.1 billion in H1: FY 22. This led to an augmented foreign exchange reserves crossing the milestone of US$ 600 billion and touching US$ 635.4 billion as at end-September 2021.

The quarterly trends in major components of India's balance of payments is depicted in Annexure V. While the BoP surplus in Q1: FY 22 was on account of surplus in current as well as capital account, BoP surplus in Q2: FY 22 was on the back of larger surplus on capital account more than compensating the deficit on the current account (Figure 17a).

Figure 17: Overall BoP Balance and Forex Reserves



Source: RBI

Note: (i) The forex reserves indicated above are as at end date of the quarter.

(ii) The reserve cover of imports for Q3 2021-22 is provisional and will change once quarterly BoP is released.

(iii) P: Provisional

3.47 There was a massive increase in India's foreign exchange reserves during 2021-22. The forex reserves stood higher at US$ 633.6 billion as at end-December 2021, than US$ 577.0 billion as at end-March 2021. However, the import cover of India's foreign exchange reserves declined to 13.2 months at end-December 2021 from 17.4 months at end-March 2021 as merchandise imports increased with pick-up in domestic economic activity (Figure 17b).[5] As at end-November 2021, India was the fourth largest foreign exchange reserves holder in the world after China, Japan and Switzerland.

3.48 The current account deficit in the BoP determines how much of net capital inflows into the country can be absorbed or used for growth. It is expected to be within the manageable limits during 2021-22. From a historical perspective, India can sustain a current account deficit of 2.5-3.0 per cent of GDP without getting into an external sector crisis.[6]

MOVEMENT IN EXCHANGE RATE

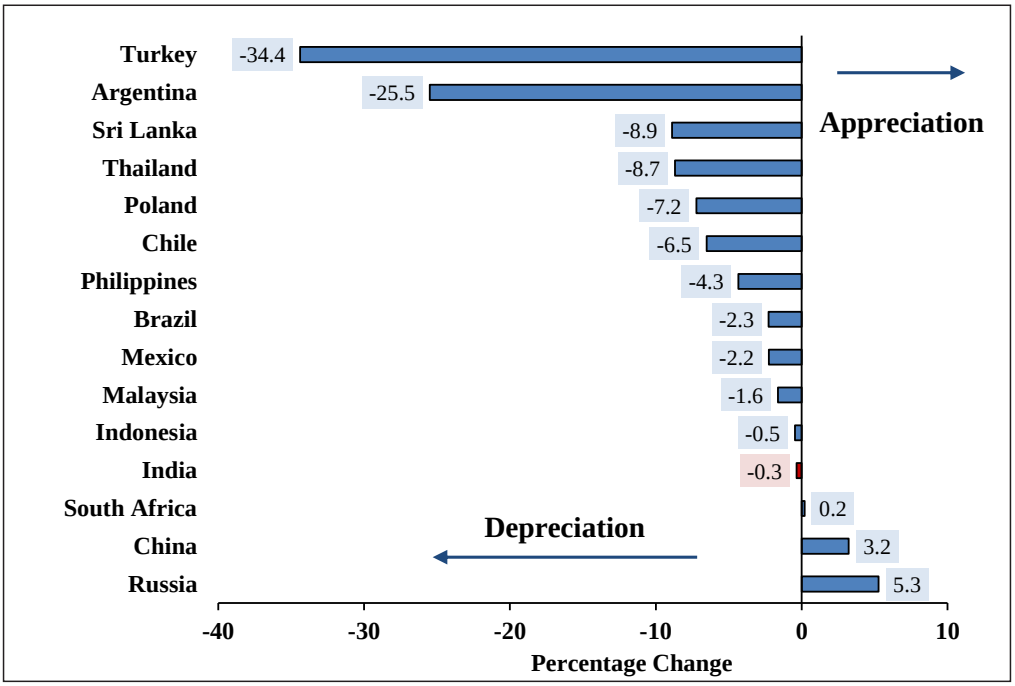
3.49 Indian rupee depreciated by 4.5 per cent (y-o-y basis) against US dollar in 2020-21. Although the rupee exhibited movements in both directions against US dollar during April-December, 2021, it depreciated by 3.4 per cent in December 2021 over March 2021. The depreciation of the rupee, however, was modest as compared with its emerging market peers, such as Turkish lira, Argentine Peso, Thai baht, and Philippine peso (Figure 18). The rupee appreciated against euro, Japanese yen and pound sterling by 1.8 per cent, 1.3 per cent and 0.6 per cent, respectively, in December 2021 over March 2021.

[5]Import cover is calculated based on import data (BoP basis) for latest four quarters. For Oct-Dec 2021, provisional import data as provided by DGCIS is used.

[6]Patra, M D (2021): Growth and Development in the BRICS Economies, RBI, Bulletin, December

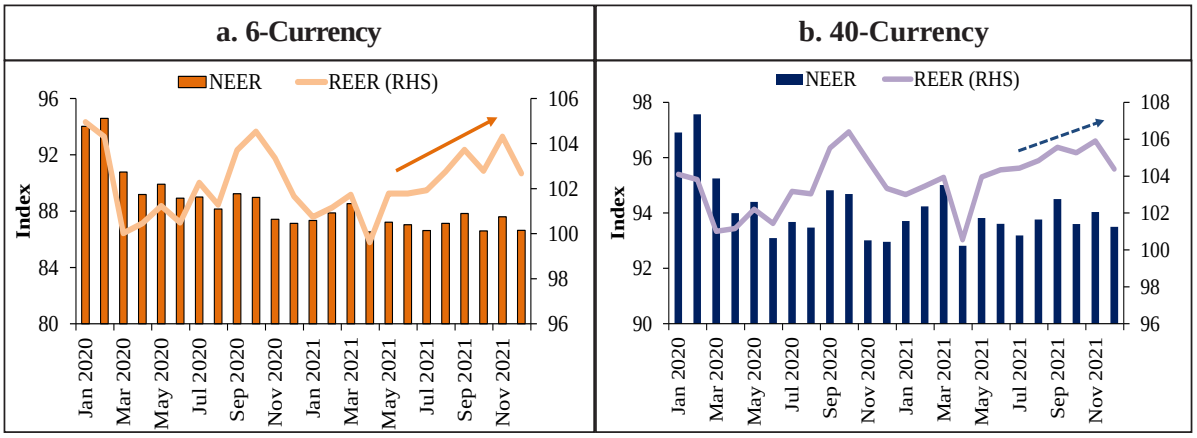
3.50 In terms of 6-currency nominal effective exchange rate (NEER) (trade-weighted), the rupee depreciated by 2.1 per cent in December 2021 over March 2021, while it appreciated by 0.9 per cent in terms of real effective exchange rate (i.e. REER) terms (Figure 19a). Similarly, the rupee depreciated by 1.6 per cent in terms of 40-currency NEER (trade-weighted) in December 2021 over March 2021, while it appreciated by 0.4 per cent in terms of 40-currency REER, reflecting widening inflation differential with trading partners (Figure 19b).

Figure 18: Movement of exchange rate against US dollar of major EME* currencies (Nov 2021 over Nov 2020)



Source: Bank for International Settlements (BIS)
Note: *: EME: Emerging market economies

Figure 19: Index of 6-Currency and 40-Currency NEER and REER (Trade Based Weight) (Base Year: 2015-16 =100)



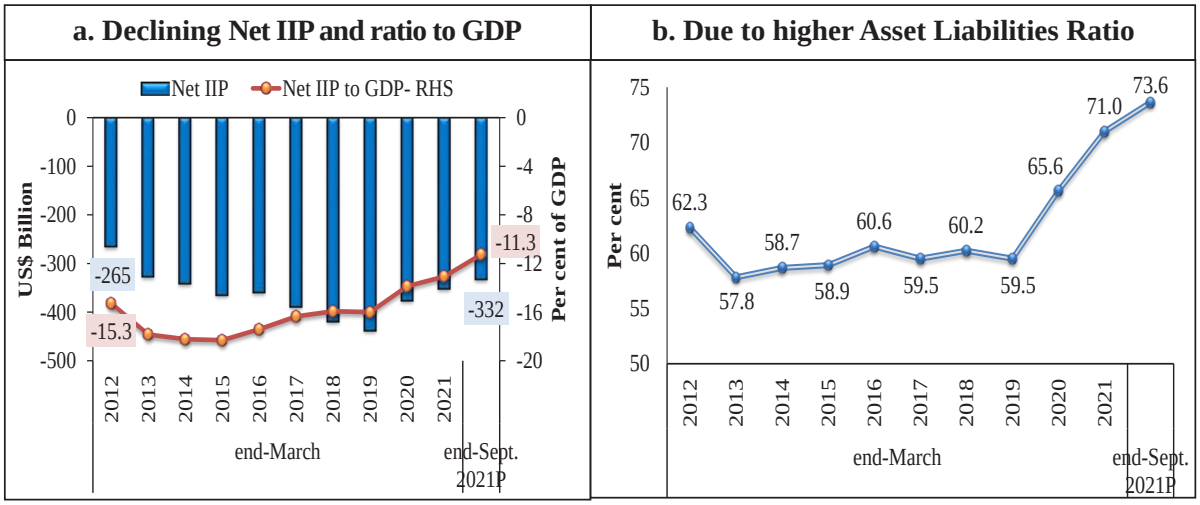
Source: RBI

NET INTERNATIONAL INVESTMENT POSITION

3.51 One way to gauge country's resilience is to look at its net international investment position. Net International Investment Position (IIP) is the difference between the value of financial assets of residents of an economy that are claims on non-residents and the liabilities of residents of an economy to non-residents at a point in time. It represents either a net claim on or a net liability to the rest of the world.

3.52 India's net IIP stood at (-) 11.3 per cent of GDP (US$ -332 billion) as at end-September 2021 – a sustained improvement since end-March 2019 – led by a higher asset-liability ratio, which improved to 73.6 per cent as at end-September 2021 from end-March 2021 (Figure 20). The improvement in asset- liability ratio is due to significant build-up of reserve assets (US$ 58.4 billion between Q4: FY21 and Q2: FY22), which more than compensated for build-up in liabilities on account of FDI, FPI and other investments.

Figure 20: Net International Investment Position (IIP)



Source: RBI
Note: P: Provisional

EXTERNAL DEBT

3.53 India's external debt as at end-September 2021, estimated at US$ 593.1 billion, grew by US$ 22.3 billion (3.9 per cent) over the level as at end-June 2021. Excluding the valuation gains due to the appreciation of the US dollar, the increase in external debt would have been US$ 23.7 billion, instead of US$ 22.3 billion. Commercial borrowings, the largest component of external debt, at US$ 218.8 billion, recorded a quarter-over-quarter (q-o-q) positive growth of 2.5 percent over the level a quarter ago. The NRI deposits, the second largest component, at US$ 141.6 billion were at the same level as at end of the previous quarter. The short-term trade credit, the third largest component, at US$ 97.4 billion continued to contract. Together, these three components constitute 77.2 percent of total external debt as at end-September, 2021. IMF (SDRs) at US$ 23.3 billion rose by as much as US$ 17.6 billion (310.8 per cent) over the level as at end-June 2021, primarily reflecting additional SDR allocation on August 23, 2021.

3.54 India's external debt, which crossed the pre-crisis level as at end-March 2021, consolidated further as at end-September 2021, aided by revival in NRI deposits and the afore-mentioned

one-off additional SDR allocation by the IMF. Commercial borrowings and the short-term trade credit, on the other hand, which are growth-sensitive, still continued to be below the pre-pandemic levels (Table 8).

Table 8: External Debt Outstanding

(US$ billion)

		Dec-19	Mar-20	Jun-20	Sep-20 PR	Dec-20 PR	Mar-21 PR	Jun-21 PR	Sep-21 P
1.	Multilateral	60.2	59.9 (-0.4)	64.7 (8.0)	67.0 (3.6)	68.1 (1.6)	69.7 (2.5)	70.2 (0.6)	71.4 (1.7)
2.	Bilateral	27.3	28.1 (2.9)	28.5 (1.6)	29.3 (2.7)	30.5 (4.3)	30.9 (1.3)	30.8 (-0.5)	30.9 (0.5)
3.	International Monetary Fund	5.5	5.4 (-1.3)	5.5 (0.8)	5.6 (2.3)	5.7 (2.3)	5.6 (-1.6)	5.7 (0.6)	23.3 (310.8)
4.	Trade Credit	6.9	7.0 (1.9)	6.8 (-2.6)	7.0 (2.8)	6.5 (-7.5)	6.3 (-3.1)	5.7 (-8.8)	5.6 (-1.7)
5.	Commercial Borrowings	223.1	219.5 (-1.6)	211.0 (-3.9)	206.8 (-2.0)	207.9 (0.5)	213.1 (2.5)	213.4 (0.2)	218.8 (2.5)
6.	NRI Deposits (above one-year)	133.1	130.6 (-1.9)	132.7 (1.6)	137.3 (3.4)	140.5 (2.3)	141.9 (1.0)	141.5 (-0.3)	141.6 (0.0)
7.	Rupee Debt	1.1	1.0 (-5.2)	1.0 (-5.2)	1.0 (2.0)	1.0 (0.9)	1.0 (-2.2)	1.0 (-0.8)	1.0 (-1.6)
8.	Total Long-Term Debt (1 to 7)	457.2	451.6 (-1.2)	450.2 (-0.3)	454.0 (0.8)	460.2 (1.4)	468.5 (1.8)	468.3 (-0.1)	492.5 (5.2)
9.	Short-term Debt	106.8	106.9 (0.1)	105.0 (-1.7)	102.8 (-2.1)	103.5 (0.7)	101.1 (-2.4)	102.5 (1.4)	100.6 (-1.9)
9a.	Trade Related Credits	102.4	101.4 (-1.0)	101.2 (-0.2)	99.4 (-1.8)	99.6 (0.2)	97.3 (-2.4)	99.2 (2.0)	97.4 (-1.8)
	Total (8+9)	**564.0**	**558.4 (-1.0)**	**555.2 (-0.6)**	**556.8 (0.3)**	**563.8 (1.3)**	**569.6 (1.0)**	**570.8 (0.2)**	**593.1 (3.9)**

Source: RBI, Ministry of Finance, Staff calculations
Note: (i) Data for end of the quarter
(ii) Figures in brackets are quarter-over-quarter (q-o-q) growth rates
(iii) End-December 2019 is the pre-pandemic quarter
(iv) PR: Partially Revised; P: Provisional

3.55 As far as currency composition of external debt is concerned, US dollar denominated debt remained the largest component of India's external debt, with a share of 51 per cent at end-September 2021, followed by the Indian rupee. External debt denominated in Indian rupee witnessed impressive increase over the years owing, *inter alia*, to a calibrated encouragement of FPI investment into the Indian debt market, apart from continued large accretion to Non-Resident External Rupee Account (See Appendix 8.4 in Volume 2). Accordingly, being the second largest component, Indian rupee denominated debt provides significant insulation from exchange rate fluctuations.

3.56 Leveraging on the robust trends outlined above, the set of salient external sector vulnerability indicators improved. Debt service (i.e., principal repayments and interest payments) declined to 4.7 per cent of current receipts at end-September 2021, as compared with 8.2 per cent at

end-March 2021, reflecting lower repayments and higher current receipts. The share of short-term debt in total external debt fell marginally to 17.0 per cent at end-September 2021 from 17.7 per cent at end-March 2021. Further, a sizeable accretion in reserves, however, led to an improvement in other external vulnerability indicators such as forex reserves to total external debt, short term debt to foreign exchange reserves, etc. The foreign exchange reserves as a ratio to external debt crossed 100 percent after 11 years since 2010, and stood at 107.1 per cent as at end-September 2021. The ratio of short-term debt (original maturity) to foreign exchange reserves declined to 15.8 per cent at end-September 2021 from 17.5 per cent at end-March 2021.

3.57 As documented in the previous edition of the Economic Survey, from a medium-term perspective, India's external debt continues to be below what is estimated to be optimal for an emerging market economy, while various external sector vulnerability indicators improved over the recent years, pointing towards the resilience of India's external sector.

3.58 In recent months, scaling back of pandemic-related stimulus programme amidst persistent inflationary pressures in advanced economies, particularly the US, have reignited some fears of taper tantrum. However, India's external sector – well supported by strong exports, capital inflows, low CAD and external financing requirements and high foreign exchange reserves, with various external vulnerability indicators well within manageable limits – is far better prepared this time to face any external shocks arising out of tightening of the monetary policy stance by the advanced economies in coming months (Box 2).

Box 2: Taper without Tantrums: India's external sector resilience

The Federal Reserve embarked on a programme of asset purchases under the Quantitative Easing (QE), as part of a broader policy response to the Global Financial Crisis in 2007-08. As the US economy gained traction, in an attempt to unwind the QE, on May 22, 2013, the Fed announced the intent to start tapering asset purchases at a future date, which triggered a tantrum in the form of spike in bond yields and resulted in disruptions on the external front for India as well.

In response to the pandemic, since June 2020, the Fed had been buying US$ 80 billion of Treasury securities and US$ 40 billion of agency mortgage-backed securities (MBS) each month. In late July 2021, the Fed signalled that it would start reducing the volume of its bond purchases later in the year. On November 3, 2021, the Federal Open Market Committee unanimously voted to scale back its asset purchases. In line with this, the Reserve Bank of Australia (RBA) has also abandoned its yield curve target. As yields on government debt climbed, the RBA chose not to intervene to defend its target of 10 basis points for debt maturing in April 2024. Bank of Canada has gradually tapered its asset purchases in recent months. Thus, the long-awaited taper process has commenced by the systemically important central banks, renewing thereby an element of interest - within the academia and policy circles - in the potentially destabilising spill-over impact on the emerging market and developing economies as also for India. There is evidence that, inter alia, these emerging markets, including India, have succeeded in strengthening their external economic and financial position since 2013 and the ramifications of the taper on the Indian external sector would be limited (Barry Eichengreen et al (2021)).

India's Improved Resilience

Since the taper episode of 2013, India's salient external sector sustainability indicators improved (Table B2.1). Illustratively, the conventional metric of import cover in terms of number of months of imports is more than double since the episode of taper tantrum.

Table B2.1: External Vulnerability Indicators for India

(Per cent, unless otherwise indicated)

Indicator	Global Financial Crisis (FY 2009)	Taper-Tantrum (FY 2014)	H1: FY 2022
External Debt (US$ Billion)	224.5	446.2	593.1
Foreign Exchange Reserves (US$ Billion)	252	304.2	633.6*
External Debt to GDP ratio	20.7	23.9	20.1
Short-term debt (RM) to Total Debt	38.8	39.7	43.2
Concessional Debt to Total Debt	18.7	10.4	8.6
Reserves to Total Debt	112.2	68.2	107.1
Reserves to Short-term Debt (RM)	270.2	171.9	248.2
Reserves Cover of Imports (in months)	9.8	7.8	14.6
Debt Service Ratio	4.4	5.9	4.7
Net IIP/ GDP ratio	-5.8	-18.2	-11.3

Source: Based on data of RBI
Note: (i) *: Forex reserves as on 31st Dec, 2021
(ii) RM: Residual Maturity

Due to accretion of large foreign exchange reserves in recent months, vulnerability indicators relating to reserves such as reserves to total external debt, reserves to short-term debt (residual maturity), reserve cover of imports, etc., have shown marked improvement in H1: FY 2022, vis-à-vis FY 2014, the taper-tantrum year. Another key vulnerability indicator i.e. net IIP to GDP ratio has declined to (-) 11.3 percent, as against (-) 18.2 percent in the said period. The external debt to GDP ratio has also declined since the said episode. Besides, India witnessed a current account surplus of 0.9 per cent Q1 of 2021-22 on top of similar surplus in 2020-21 after a gap of 17 years. On the other hand, India experienced the highest ever current account deficit of 4.8 per cent of GDP in 2012-13 on the back of an equally large deficit of 4.3 per cent during the previous year (2011-12).

Evidently, the Indian economy has exhibited greater resilience so far to the current episode of taper. In the immediate aftermath of the taper tantrum in 2013, India experienced portfolio outflows aggregating to ₹79,375 crore from capital markets, including ₹19,165 crore from equity markets and ₹60,210 crore from debt markets during May 23-August 30, 2013. The latest announcement of reduction in asset purchases on November 3, 2021 by the Fed had relatively muted impact on portfolio flows. The total portfolio outflows amounted to ₹34,178 crore, comprising ₹29,168 crore from equity markets and ₹5,010 crore from debt markets during the period November-January 20, 2022.

While acknowledging India's transformation from being among the Fragile Five countries in the wake of the earlier episode to the 4th largest forex reserve holder during the current episode, Indian economy stands guard with an added advantage of plenty of policy room for manoeuvring as the process of normalisation of monetary policy by systematically important central banks takes hold.[7]

Reference

Barry Eichengreen, Poonam Gupta and Rishabh Choudhary (2021): The Taper This Time; NCAER Working Paper, November.

[7]Fragile Five countries (Indonesia, South Africa, Brazil, Turkey and India) were identified to be most at risk when tapering began in 2013.

Annexure I

Table 1: Top 10 Agricultural Export Products

(US$ Billion)

Rank	Commodity	2019-20	2020-21	2020-21 (Apr-Nov)	2021-22 (Apr-Nov) (P)
1	Marine Products	6.7	6.0	4.0	5.4
2	Rice(Other Than Basmoti)	2.0	4.8	2.7	3.9
3	Spices	3.6	4.0	2.6	2.7
4	Sugar	2.0	2.8	1.6	2.3
5	Buffalo Meat	3.2	3.2	2.1	2.2
6	Rice -Basmoti	4.4	4.0	2.7	2.1
7	Cotton Raw Incld. Waste	1.1	1.9	0.8	1.5
8	Wheat	0.1	0.6	0.2	1.2
9	Castor Oil	0.9	0.9	0.6	0.8
10	Misc Processed Items	0.6	0.9	0.5	0.7
	Total Agricultural Exports	35.6	41.9	25.2	31.0

Source: Department of Commerce.
Note: P: Provisional.

Annexure II

Table 2: India's Exports of Services

(US$ Million)

S. No.	Sector	2019-20				2020-21				2021-22 (P)	
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
1	Manufacturing services on physical inputs owned by others	33	58	76	66	77	68	49	102	83	75
2	Maintenance and repair services n.i.e.	45	44	64	41	32	35	38	54	58	74
3	Transport	5343	5181	5448	5016	4805	5368	5602	6080	6733	7584
4	Travel	6950	7643	8545	6860	1868	2138	2170	2308	1597	2147
5	Construction	754	677	734	931	659	589	619	752	583	716
6	Insurance and pension services	588	602	617	623	564	590	575	647	772	796
7	Financial services	1287	1239	1183	1024	1009	1003	1068	1258	1201	1303
8	Charges for the use of intellectual property n.i.e.	319	248	184	182	399	313	359	238	191	202
9	Telecommunications, computer, and information services	23604	23947	24592	23967	23396	25515	26593	27574	28489	30823
	Of which: computer services	22811	23247	23760	23285	22623	24791	25782	26802	27602	29965
10	Other business services	11475	10878	11889	11474	11282	11624	12930	13324	12962	13858
11	Personal, cultural, and recreational services	532	551	535	588	500	530	579	727	647	713
12	Government goods and services n.i.e.	151	169	157	182	148	144	179	159	203	217
13	Others n.i.e.	1114	1539	1134	2105	2212	1875	2579	2781	2698	2915
	Total	52196	52777	55158	53060	46953	49793	53339	56004	56217	61421

Source: Reserve Bank of India

Note: (i) As per the latest IMF Manual on BoP (BPM6), "other business services" are classified under three broad heads: Research and development services, Professional and management consultancy services and Technical, trade-related and other business services.

(ii) P: Provisional

Annexure III

Table 3: India's Imports of Services

(US$ Million)

S. No.	Sector	2019-20				2020-21				2021-22	
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
1	Manufacturing services on physical inputs owned by others	18	33	9	8	6	11	5	6	9	16
2	Maintenance and repair services n.i.e.	413	253	207	309	128	204	291	211	127	418
3	Transport	6104	6009	6411	5761	4216	4759	5147	5633	6616	8181
4	Travel	6203	6031	5569	4208	2766	2764	2836	3141	2885	3919
5	Construction	754	714	570	708	625	563	705	713	892	715
6	Insurance and pension services	409	354	549	426	378	537	577	566	428	575
7	Financial services	519	594	550	1256	1062	1107	1192	1402	1118	1463
8	Charges for the use of intellectual property n.i.e.	2091	1776	2197	1641	1847	1456	2297	2107	1972	2189
9	Telecommunications, computer, and information services	2207	2654	2712	2638	2269	3290	2810	3909	3017	3651
	Of which: Computer services	1812	2182	2305	2159	1849	2769	2312	3327	2466	3184
10	Other business services	11715	11211	12027	11928	11514	12354	12807	12847	11635	12457
11	Personal, cultural, and recreational services	631	923	757	819	347	817	768	878	804	1243
12	Government goods and services n.i.e.	307	298	218	284	330	190	260	241	236	198
13	Others n.i.e.	750	984	1503	1046	705	655	408	865	667	811
	Total	32120	31836	33280	31033	26195	28707	30103	32520	30406	35836

Source: Reserve Bank of India

Note: (i) As per the latest IMF Manual on BoP (BPM6), "other business services" are classified under three broad heads: Research and development services, Professional and management consultancy services and Technical, trade-related and other business services.

(ii) P: Provisional

Annexure IV

Table 4: Sectors attracting highest FDI Equity Inflows

Rank	Sector	(US$ Billion)				Share (in Per cent)			
		2019-20	2020-21	2020-21 H1	2021-22 H1	2019-20	2020-21	2020-21 H1	2021-22 H1
1	Computer Software & Hardware	7.7	26.1	17.6	7.1	15.4	43.8	58.5	22.9
2	Automobile Industry	2.8	1.6	0.4	4.9	5.7	2.7	1.4	15.8
3	Services Sector**	7.9	5.1	2.3	3.2	15.7	8.5	7.5	10.1
4	Trading	4.6	2.6	0.9	2.1	9.2	4.4	3.2	6.6
5	Telecommunications	4.4	0.4	0.0	0.4	8.9	0.7	0.0	1.2
	Total Of Above	27.4	35.8	21.2	17.6	54.8	60.1	70.6	56.6
	Total FDI	50.0	59.6	30.0	31.2	100	100	100	100

Source: Department for Promotion of Industry and Internal Trade (DPIIT)
Note: (i)** Services sector includes Financial, Banking, Insurance, Non-Financial / Business, Outsourcing, R&D, Courier, Tech.
(ii) Figures are provisional.

Table 5: Top Investing Countries FDI Equity Inflows

Rank	Country	US$ Billion				Share (in Per cent)			
		2019-20	2020-21	2020-21 H1	2021-22 H1	2019-20	2020-21	2020-21 H1	2021-22 H1
1	Singapore	14.7	17.4	8.3	8.1	29.4	29.2	27.7	25.9
2	U.S.A.	4.2	13.8	7.1	4.6	8.4	23.2	23.7	14.9
3	Mauritius	8.2	5.6	2.0	4.3	16.5	9.5	6.7	13.9
4	Netherlands	6.5	2.8	1.5	2.1	13.0	4.7	5.0	6.9
5	Japan	3.2	2.0	0.7	0.8	6.5	3.3	2.2	2.6
	Sum of Above	36.9	41.6	19.6	20.0	73.8	69.8	65.3	64.1
	All Countries *	50.0	59.6	30.0	31.2	100.0	100.0	100.0	100.0

Source: Department for Promotion of Industry and Internal Trade (DPIIT)
Note: (i) *Includes inflows under NRI Schemes of RBI.
(ii) Figures are provisional.

Annexure V

Table 6: Major Components of India's Balance of Payments

(US$ Billion)

Year / Item (Net)	2019-20				2020-21				2021-22 (P)	
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
A. Current Account	**-15.0**	**-7.6**	**-2.6**	**0.6**	**19.1**	**15.3**	**-2.2**	**-8.2**	**6.5**	**-9.6**
A 1 Merchandise Trade Balance	**-46.8**	**-39.6**	**-36.0**	**-35.0**	**-11.0**	**-14.8**	**-34.6**	**-41.7**	**-30.7**	**-44.4**
A 1 a Merchandise Exports	82.7	80.0	81.2	76.5	52.2	75.6	77.2	91.3	97.4	104.8
A 1b Merchandise Imports	129.5	119.6	117.3	111.6	63.2	90.4	111.8	133.0	128.2	149.3
A 2. Invisibles	**31.8**	**32.1**	**33.4**	**35.6**	**30.0**	**30.1**	**32.4**	**33.6**	**37.2**	**34.8**
A 2.a) Services	20.1	20.9	21.9	22.0	20.8	21.1	23.2	23.5	25.8	25.6
A 2.b) Transfers	18.0	20.0	18.9	18.4	17.0	18.4	19.3	18.8	18.9	18.9
A 2.c) Income	-6.3	-8.8	-7.4	-4.8	-7.7	-9.4	-10.1	-8.7	-7.5	-9.7
B) Capital Account	**28.6**	**13.6**	**23.6**	**17.4**	**1.4**	**15.9**	**34.1**	**12.3**	**25.5**	**40.1**
B.1) Foreign Investment	18.8	9.8	17.6	-1.8	0.1	31.4	38.6	10.0	12.1	13.3
B.1.a) Foreign Direct Investment	14.0	7.3	9.7	12.0	-0.5	24.4	17.4	2.7	11.7	9.5
B.1.b Foreign Portfolio Investment	4.8	2.5	7.8	-13.7	0.6	7.0	21.2	7.3	0.4	3.9
B.2) Loans	**9.6**	**3.1**	**3.1**	**9.9**	**2.8**	**-3.9**	**0.3**	**7.7**	**2.8**	**7.6**
B.2.a) External Assistance	1.5	0.4	1.3	0.6	4.1	1.9	1.2	4.0	0.3	1.1
B.2.b) Commercial Borrowings (MT & LT)	6.1	3.3	3.2	10.3	-1.2	-4.0	-1.1	6.1	0.6	4.1
B.2.c) Short Term Credit to India	2.0	-0.6	-1.4	-1.0	-0.2	-1.8	0.2	-2.3	1.9	2.4
B.3) Banking Capital	**3.4**	**-1.8**	**-2.3**	**-4.6**	**2.2**	**-11.3**	**-7.6**	**-4.4**	**4.1**	**0.4**
B.4) Rupee Debt Service	**-0.1**	**0.0**	**0.0**	**0.0**	**-0.1**	**0.0**	**0.0**	**0.0**	**-0.1**	**0.0**
B.5) Other Capital	**-3.1**	**2.5**	**5.2**	**13.8**	**-3.7**	**-0.3**	**2.8**	**-1.0**	**6.6**	**18.8**
C) Errors and Omissions	**0.4**	**-0.9**	**0.6**	**0.9**	**-0.6**	**0.4**	**0.6**	**-0.7**	**-0.2**	**0.7**
D) Overall Balance	**14.0**	**5.1**	**21.6**	**18.8**	**19.8**	**31.6**	**32.5**	**3.4**	**31.9**	**31.2**
E) Foreign Exchange Reserves (Increase - / Decrease +)	**-14.0**	**-5.1**	**-21.6**	**-18.8**	**-19.8**	**-31.6**	**-32.5**	**-3.4**	**-31.9**	**-31.2**

Source: RBI
Note: P: Provisional

04 CHAPTER

Monetary Management and Financial Intermediation

Monetary policy and liquidity operations since the beginning of the COVID-19 pandemic have geared towards mitigating its adverse impact on economy. Accommodative monetary policy along with other regulatory dispensations, asset classification standstill, temporary moratorium and provision of adequate liquidity were put in place in order to provide a safety net to the system. In 2021-22, some of the measures undertaken by RBI like CRR reduction reached pre-set sunset dates, liquidity has been wound down partly but remains in surplus mode and regulatory measures have been realigned.

After several rate cuts in 2019-20 and 2020-21, the repo rate was maintained at 4 per cent in 2021-22. The liquidity in the system remained in surplus throughout. RBI undertook various measures, including secondary market G-sec acquisition programme, special Long-Term Repo operations, on tap targeted Long-Term Repo Operations, etc. to provide further liquidity in the system. Thereafter, RBI used Variable Rate Reverse Repo, reverse repo auctions to rebalance liquidity conditions.

Reserve money and broad money supply growth in 2021-22 so far was lower than in the previous year. The reserve money growth did not fully translate into commensurate broad money supply growth due to the smaller (adjusted) money multiplier reflecting large deposits by banks with RBI under reverse repo window. Bank credit growth accelerated gradually in 2021-22 up from 5.3 per cent in the beginning of April 2021. The very latest data shows that the bank credit growth stands at 9.2 per cent as on 31st December 2021. At the sectoral level, credit to agriculture sector continued to register robust growth and showed signs of improvement in the industry sector. Services sector credit growth, however, is yet to recover.

Gross Non-Performing advances ratio of Scheduled Commercial Banks (SCBs) continued to decline from 11.2 per cent at end of 2017-18 to 6.9 per cent at end-September 2021. Similarly, Net Non-Performing advances ratio declined from 6 per cent to 2.2 per cent during the same period. Capital to risk-weighted asset ratio of SCBs continued to increase from 13 per cent in 2013-14 to 16.54 per cent at end-September 2021. The Return on Assets and Return on Equity for Public Sector Banks became positive in June 2020 and continued to be positive for the period ending September 2021, after recording negative profitability ratios from March 2016 to March 2020. The economic shock of the pandemic has been weathered well by the commercial banking system so far, even if some lagged impact is still in pipeline.

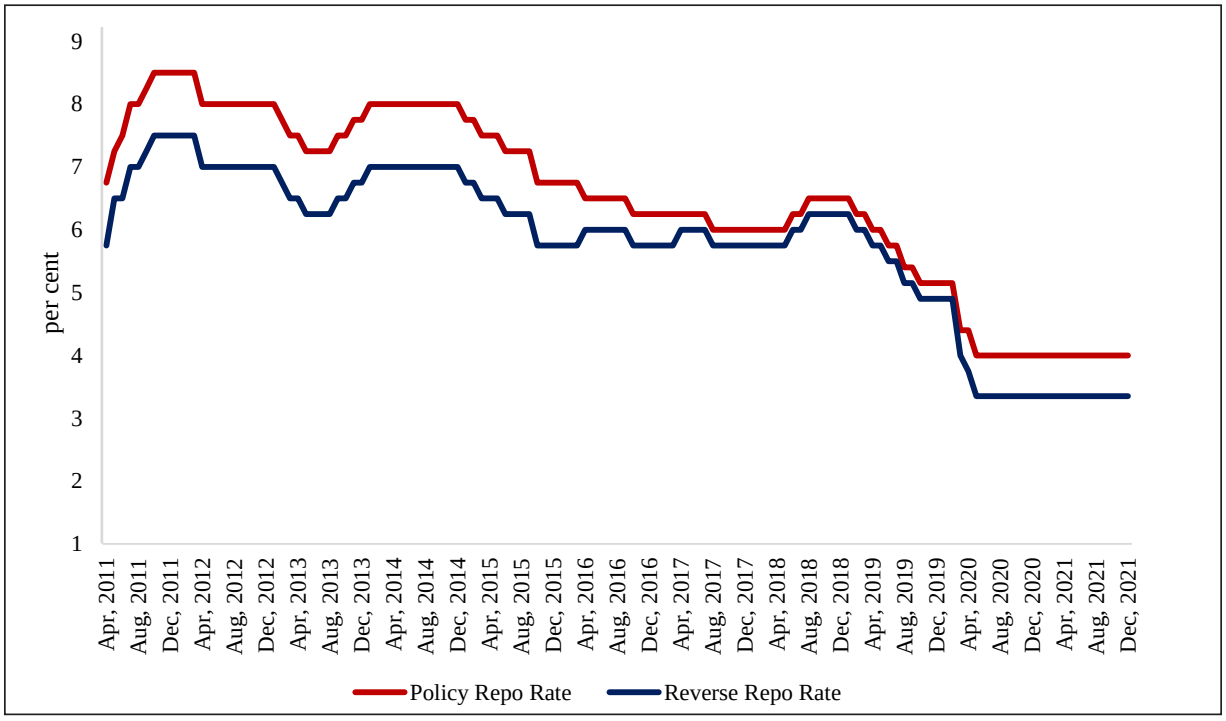
The year 2021-22 so far has been an exceptional year for the capital markets. There was a boom in fundraising through IPOs by many new age companies/tech start-ups/unicorns. In April-November 2021, ₹ 89,066 crore were raised via 75 IPO issues, much higher than in any year in last decade.

The Sensex and Nifty scaled up to touch its peak at 61,766 and 18,477 on October 18, 2021. Among major emerging market economies, Indian markets outperformed the peers in April-December 2021. The process of insolvency which was suspended in view of pandemic, started again in end-March 2021. A pre-packaged insolvency resolution process was provided under IBC as an alternative insolvency resolution process for corporate Micro, Small and Medium Enterprises in April 2021.

MONETARY DEVELOPMENTS

4.1 The Monetary Policy Committee (MPC) maintained status quo on the policy repo rate during April to December 2021 after a substantial cut of 115 basis points (bps) during February-May 2020 and a cumulative 250 basis points cut since February 2019 (Figure 1 and Table 1). The repo rate which currently stands at 4 per cent is lowest in the last decade (Figure 1). Since May 2020, the policy rates have been on hold along with an accommodative monetary policy stance with forward guidance that this stance will continue as long as necessary to revive growth on durable basis while ensuring that inflation remains within the target (Consumer Price Index inflation of 4 per cent within a band of +/- 2 per cent).

Figure 1: Repo and reverse repo rate (per cent)



Source: RBI

Table 1: Revision in Key Rates set by RBI					
Effective Date	**Repo Rate (per cent)**	**Reverse Repo Rate (per cent)**	**Cash Reserve Ratio (per cent of NDTL)**	**Statutory Liquidity Ratio (per cent of NDTL)**	**MSF Rate/ Bank Rate (per cent)**
06-02-2020	5.15	4.90	4.0	18.25	5.40
27-03-2020	4.40	4.00	4.0	18.25	4.65
28-03-2020	4.40	4.00	3.0	18.25	4.65
17-04-2020	4.40	3.75	3.0	18.00	4.65
22-05-2020	4.00	3.35	3.0	18.00	4.25
27-03-2021	4.00	3.35	3.5	18.00	4.25
22-05-2021	4.00	3.35	4.0	18.00	4.25
06-08-2021	4.00	3.35	4.0	18.00	4.25
08-10-2021	4.00	3.35	4.0	18.00	4.25
08-12-2021	4.00	3.35	4.0	18.00	4.25

Source: RBI
Note: NDTL: Net Demand and Time Liabilities

4.2 In the initial meetings of 2021-22, MPC noted that while the inflation has hovered above the upper tolerance band for some months, it was largely driven by adverse supply shocks which were expected to be transitory. The outlook for aggregate demand was progressively improving but capacity utilisation rates were low. The contact intensive services were lagging behind and the recovery was uneven and required policy support. In the latest MPC meeting in December 2021, the committee pointed out that the outlook was uncertain owing to global spillovers, potential resurgence in COVID-19 infections and divergences in policy actions and stances across the world with inflationary pressures increasing across economies. Accordingly, the MPC decided to continue monitoring the inflationary pressures, keep the policy repo rate unchanged at 4 per cent and persist with the accommodative stance.

4.3 In 2021-22 so far, the overall monetary and credit conditions remained accommodative. However, the growth rates of monetary aggregates- including Reserve money, Broad money were lower as compared to the last year. Reserve money (M0) recorded a year-on-year (YoY) growth of 13 per cent as on 7th January 2022, as compared to 14.3 per cent a year ago. However, M0 adjusted for the first-round impact of changes in the Cash Reserve Ratio (CRR) recorded a lower growth (YoY) of 7.7 per cent, as compared with 18.3 per cent a year ago (Figure 2).

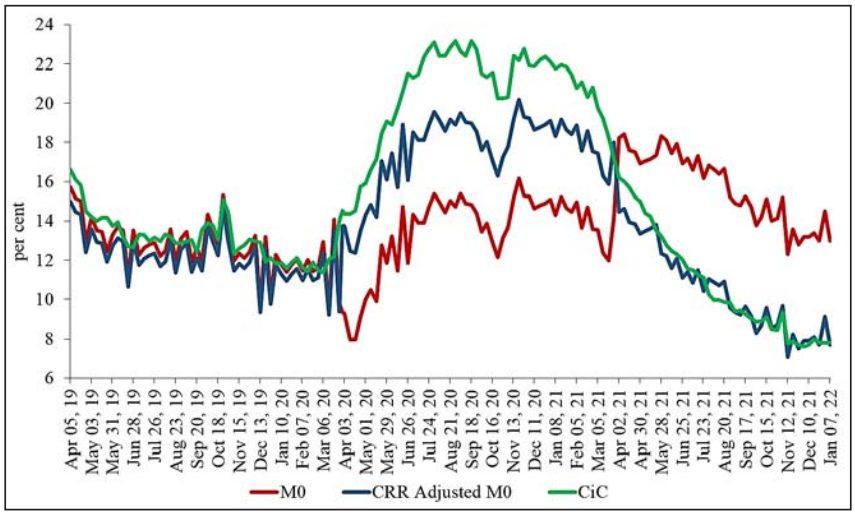
4.4 Expansion in M0 during 2021-22 so far was driven by bankers' deposits with the RBI from the component side, with CRR restoration in phases, effective 27th March 2021 and 22nd May 2021. Currency in Circulation (CIC) grew by 7.8 per cent as on 7th January 2022, lower as compared to the previous year as precautionary demand for cash subsided (Table 2).

Table 2: Growth (YoY) in Monetary Aggregates (end-March) (per cent)							
Item	**2015-16**	**2016-17^**	**2017-18**	**2018-19**	**2019-20**	**2020-21**	**2021-22***
Currency in Circulation (CIC)	14.9	-19.7	37.0	16.8	14.5	16.6	7.8#
Cash with Banks	6.6	4.2	-2.1	21.4	15.4	4.5	10.7
Currency with the Public	15.2	-20.8	39.2	16.6	14.5	17.1	7.7
Bankers' Deposits with the RBI	7.8	8.4	3.9	6.4	-9.6	28.5	42.0#
Demand Deposits	11.0	18.4	6.2	9.6	6.8	14.8	26.2
Time Deposits	9.2	10.2	5.8	9.6	8.1	10.9	8.2
Reserve Money (M0)	**13.1**	**-12.9**	**27.3**	**14.5**	**9.4**	**18.8**	**13.0#**
Broad Money (M3)	**10.1**	**6.9**	**9.2**	**10.5**	**8.9**	**12.2**	**9.9**

Source: RBI

Note: ^: March 31, 2017 over April 1, 2016 barring Reserve Money (M0), Currency in Circulation (CIC) and Bankers' Deposits with the RBI (BD), *: As on December 31, 2021, #: As on January 7, 2022.

Figure 2: M0, CRR Adjusted M0 and CiC Growth (YoY)



Source: RBI

Note: CIC: Currency in Circulation, CRR: Cash Reserve Ratio

4.5 In 2021-22 so far, the YoY growth of broad money (M3) stood at 9.9 per cent as on 31st December, as compared to 12.5 per cent a year ago (Figure 3). From the component side, aggregate deposits which is the largest component - has contributed most to the expansion of M3 during the year so far (Figure 4). Amongst sources, bank credit to the government was a major contributor to the increase in broad money. Banks' higher investments in liquid and risk-free assets such as SLR securities and G-secs, resulted in higher net bank credit to the government. Bank credit to the commercial sector also supplemented M3 expansion from the sources side. The YoY credit growth for Scheduled Commercial Banks was 9.2 per cent as on 31st December 2021 as compared to 6.6 per cent a year ago, reflecting pick-up in credit.

Figure 3: Broad Money Growth (YoY)

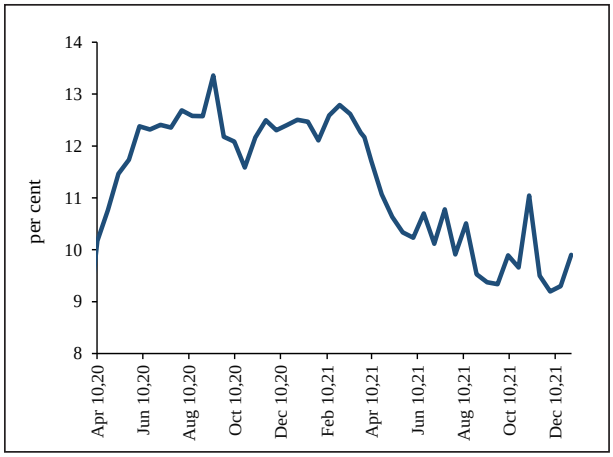
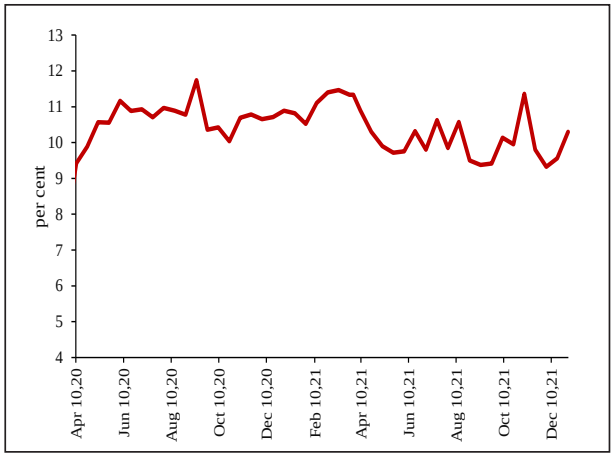


Figure 4: Aggregate Deposits Growth (YoY)

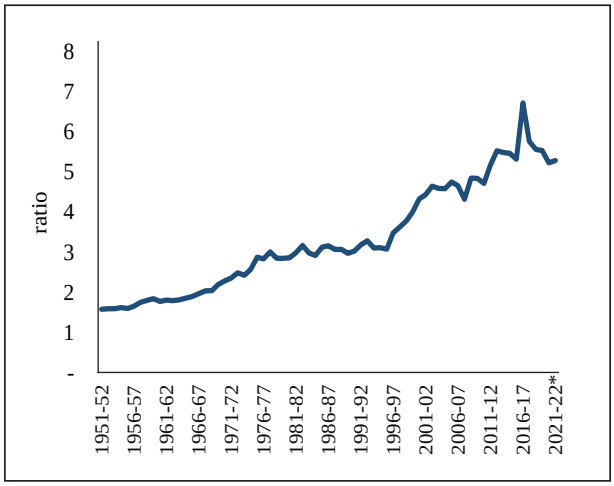


Source: RBI

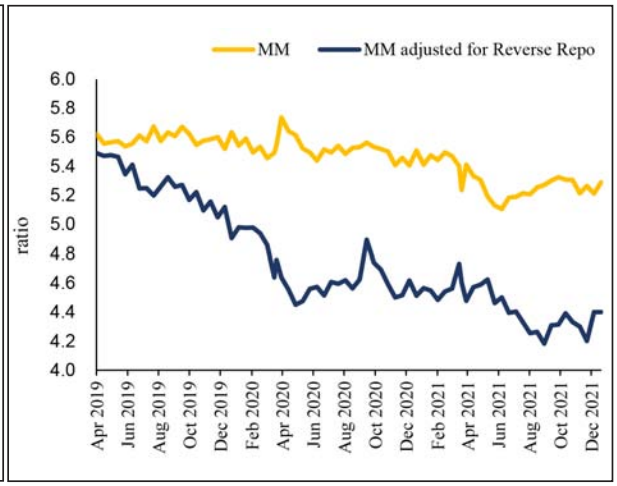
4.6 Money multiplier- measured as a ratio of M3 to M0 has been on the decline since 2017-18 (Figure 5(a)). As on 31st March 2021, money multiplier (MM) stood at 5.2 from 5.6 a year ago. However, money multiplier adjusted for reverse repo - analytically akin to banks' deposits with the central bank - turned out to be lower at 4.6 by end-March 2021. The gap between MM and adjusted MM reflects parking of funds by banks under the reverse repo window of the RBI and to some extent a weak credit creation process. Money multiplier, however, improved slightly to 5.3 as on 31st December 2021, while adjusted MM stands at 4.4 (Figure 5 (b)).

Figure 5: Money Multiplier

(5a)



(5b)



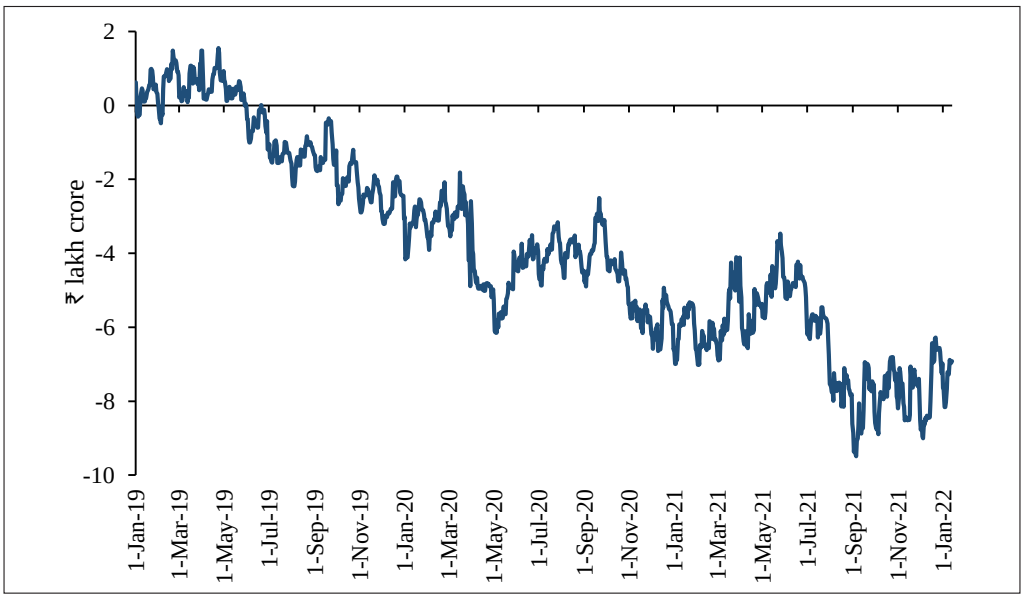
Source: RBI

Note: Money multiplier adjusted for reverse repo is based on reserve money adjusted for commercial banks' reverse repo deposits with RBI, *Number for 2021-22 is as of 31st December 2021 in Figure 5(a)

LIQUIDITY CONDITIONS AND ITS MANAGEMENT

4.7 Liquidity has remained in surplus in the system since mid-2019 in sync with the easing of monetary conditions (Figure 6). The liquidity conditions were further eased during the year 2020-21 after the covid pandemic, and RBI has since then maintained ample surplus liquidity in the banking system to support growth. In 2021-22 so far, the RBI resumed normal liquidity operations in a phased manner and engaged in rebalancing liquidity from passive absorption under fixed rate reverse repo under its Liquidity Adjustment Facility (LAF) to market based reverse repo auctions (like Variable Rate Reverse Repo (VRRR)). At the same time it also ensured adequate liquidity in the system in consonance with the accommodative monetary policy stance to support growth. The liquidity conditions remained in surplus in 2021-22.

Figure 6: Liquidity Conditions



Source: RBI

Note: Negative sign indicates surplus liquidity. Surplus liquidity in the banking system is indicated by the total net LAF absortion. Hence, an increase in total absorbation implies an increase in surplus liquidity.

4.8 The measures taken by RBI to provide targeted liquidity support to the system in 2021-22 included:

a. Special refinance facilities of ₹66,000 crore to all-India financial institutions, comprising ₹25,000 crore to the National Bank for Agriculture and Rural Development (NABARD); ₹10,000 crore to the National Housing Bank (NHB); and ₹31,000 crore to the Small Industries Development Bank of India (SIDBI).

b. Term liquidity facility of ₹50,000 crore to ramp up COVID-related healthcare infrastructure and services in the country;

c. Special Long-Term Repo Operations (SLTRO) for small finance banks of ₹10,000 crore to support small business units, micro and small industries, and other unorganised sector entities adversely affected during the second wave of the pandemic. SLTRO scheme was subsequently made on-tap and was extended till December 31, 2021.

d. On-tap liquidity window of ₹15,000 crore for contact-intensive sectors.

e. Extension of On tap Targeted Long-Term Repo Operations (On tap-TLTRO) till 31st December 2021.

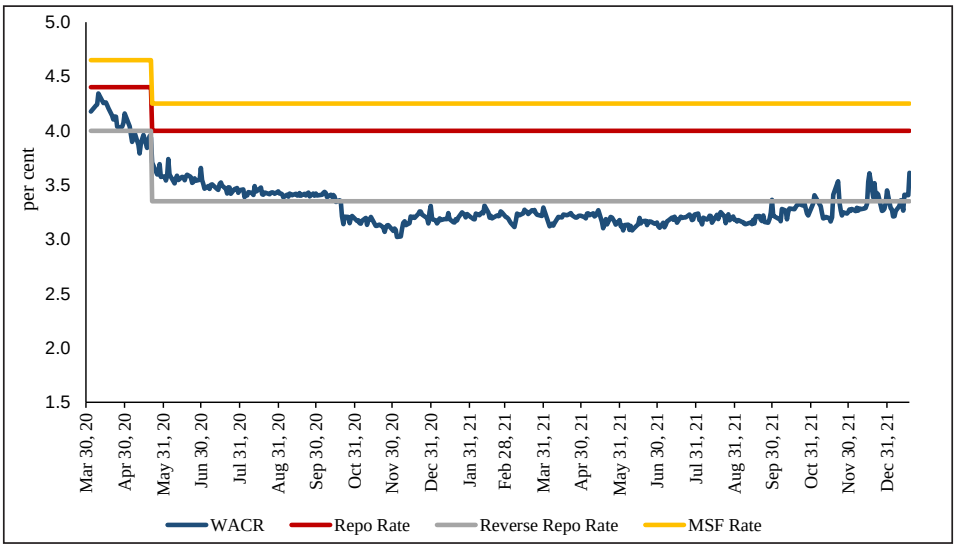
4.9 A secondary market G-sec acquisition programme (G-SAP) - which was announced during the year added to the surplus liquidity during the period. G-SAP involves upfront commitment to purchase a specific quantum of government securities with a view to enabling a stable and orderly evolution of the yield curve. RBI purchased G-secs (including state development loans) amounting to ₹1 lakh crore under G-SAP 1.0 and ₹1.2 lakh crore under G-SAP 2.0.

4.10 The gradual normalisation of liquidity management operations in sync with the revised liquidity management framework was the key feature of liquidity management in 2021-22. The 14-day Variable Rate Reverse Repo (VRRR) auctions were deployed as the main operation under the Liquidity Adjustment Facility (LAF). Further, the cash reserve ratio (CRR) which was reduced by 100 basis points (bps) in March 2020, was gradually raised to its pre-pandemic level of 4 per cent by May 2021. To manage the liquidity conditions, variable rate reverse repo auctions of varying maturities were conducted apart from the VRRR operations conducted every fortnight. The size of 14 day VRRR was gradually enhanced to ₹7.5 lakh crore by end-December 2021. During 2021-22 so far, average daily net absorptions under LAF amounted to ₹6.7 lakh crore.

4.11 During 2021-22 so far, due to the surplus liquidity conditions, call money rate generally traded below the reverse repo rate - the lower bound of the liquidity adjustment facility (LAF) corridor during the year (Figure 7). The weighted average call rate (WACR) - the operating target of monetary policy - traded 13 bps below the floor of the corridor on an average during the year so far. It was only in November 2021, that the WACR drifted back slightly within the corridor.

4.12 With RBI becoming the major counterparty for banks, there was a shrinkage in inter-bank trading activity - average daily volume in the call money market declined to ₹9,077 crore in December 2021 from ₹10,126 crore in March 2021. Interest rates on longer-term money market instruments like 91-day Treasury Bills (T-Bills), 3-month Certificates of Deposit (CDs) and Commercial Papers (CPs) generally traded above the reverse repo rate during the year.

Figure 7: Policy Corridor and WACR

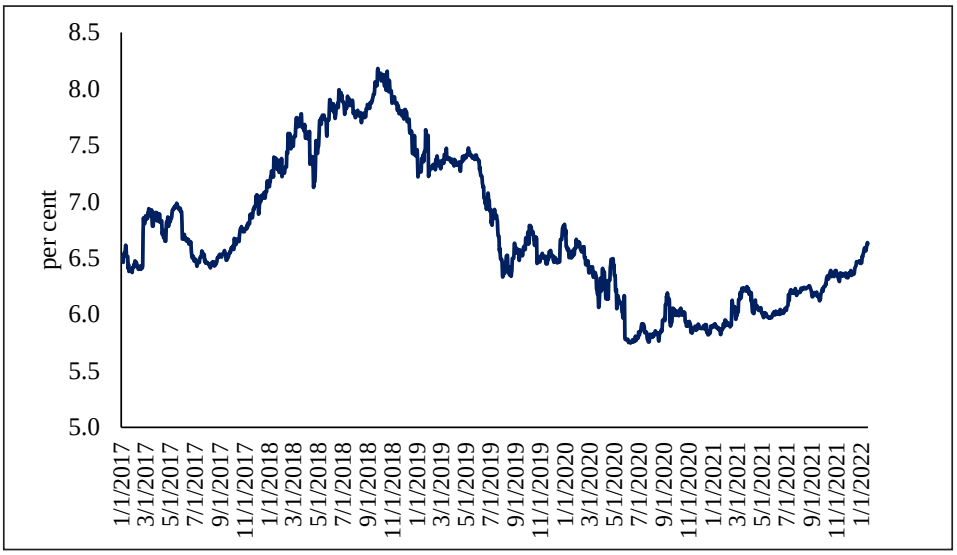


Source: RBI and CCIL

DEVELOPMENTS IN G-SEC MARKET

4.13 The yields on 10-year G sec which had reached 8.2 per cent on 26th September 2018 reduced substantially to reach 5.75 per cent in June 2020. It has since then increased to stand at 6.45 per cent as on 31st December 2021.

Figure 8: India 10-Year Generic G-Sec Yield



Source: Bloomberg

4.14 Trading in the 10-year G-sec started on a positive note in the financial year 2021-22 (Figure 8), supported by the Reserve Bank's G-SAP, continued accommodative stance domestically and dovish monetary policy stance adopted by major economies around the world. In the beginning of first quarter (Q1) of 2021-22, yield on 10-year G-Secs stood at around 6.26 per cent. The 10-year yield reached a low of 5.96 per cent (intra day) in May 2021. The announcement of G-SAP 2.0 amounting to ₹1.2 lakh crore on 4th June 2021 and the US federal open market committee's

decision on 15th June 2021 to continue with the easy monetary policy stance kept the yields near the 6 per cent mark.

4.15 In the beginning of second quarter (Q2) of 2021-22, yields started to rise. The announcement of phased increase in the quantum of VRRR operations on 6th August 2021 and shift in market sentiments to price in possibility of change in interest rate cycle sometime ahead also led to some hardening of yields up to 6.26 per cent. The successively lower consumer price index (CPI) prints, inclusion of the 10-year benchmark paper in the G-SAP auctions and no additional borrowing by government for the second half of 2021-22 helped keep yields in check. The yield on benchmark security stood at 6.22 per cent at the end of second quarter. In the third quarter (Q3) of 2021-22, rise in US treasury yields and rising crude prices led the yields to inch higher to 6.45 per cent at end-December 2021.

4.16 The term spread (measured as the gap between 10 year and 1-year G sec yield) had widened sharply in 2020, but has narrowed down slightly in 2021-22 (Figure 9). However, it is still wider as compared to the pre-pandemic years.

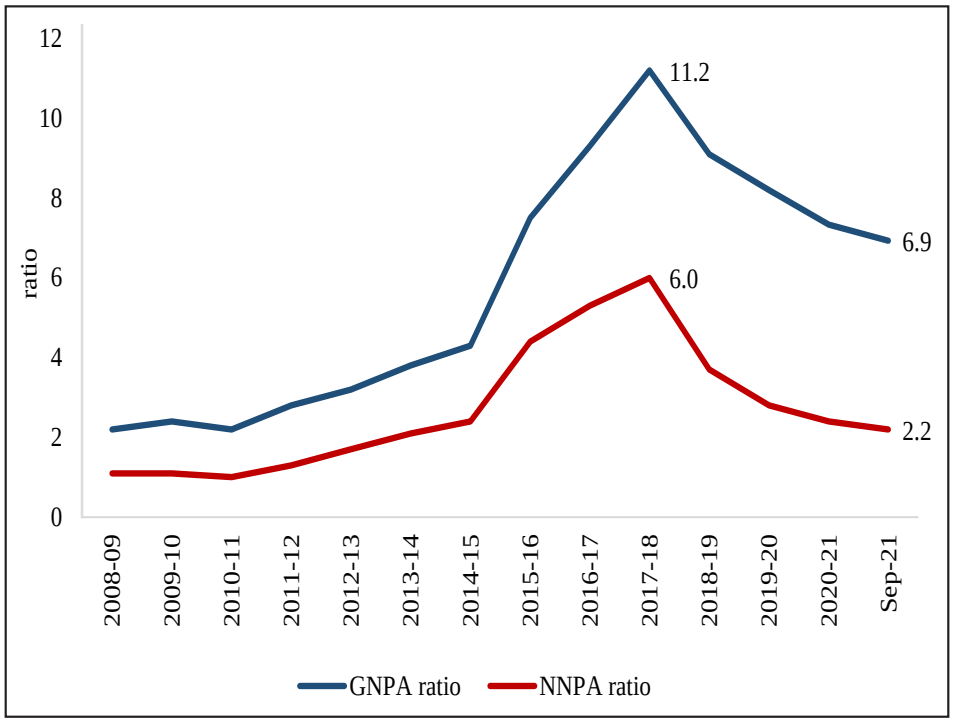
Figure 9: Yields on 1-year and 10-year G sec (per cent)

Source: Bloomberg

BANKING SECTOR

4.17 The Gross Non-Performing advances (GNPA) ratio (i.e. GNPAs as a percentage of Gross Advances) and Net Non-Preforming (NNPA) ratio of Scheduled Commercial Banks (SCBs) continued to decline since 2018-19. GNPA ratio of SCBs decreased from 7.5 per cent at end-September 2020 to 6.9 per cent at end-September 2021. NNPA ratio of SCBs was 2.2 per cent at end-September 2021 (Figure 10).

Figure 10: GNPA and NNPA ratio



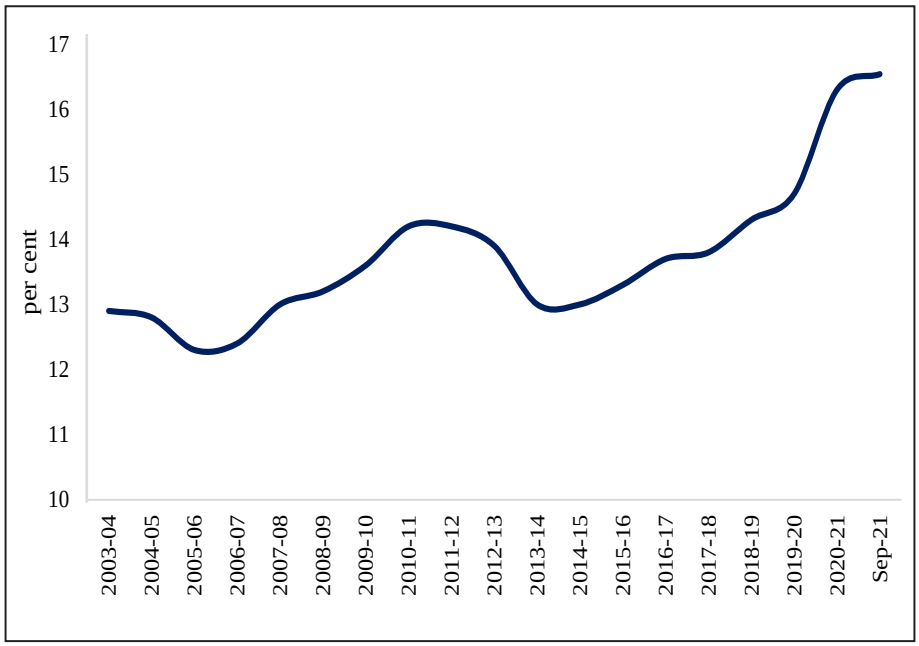
Source: RBI
Note: Number for September 2021 is based on offsite returns data

4.18 Restructured Standard Advances (RSA) ratio of SCBs increased from 0.4 per cent to 1.5 per cent during the same period. Overall, the Stressed Advances ratio of SCBs increased from 7.9 per cent at end-September 2020 to 8.5 per cent at end-September 2021. Various COVID-19 related dispensations/moratoriums provided with respect to asset quality contributed towards increase in restructured assets and as a result, stressed advances ratio for the banking system increased at end-September 2021. Overall, the banking system appears to have weathered the pandemic shock well even if there is some lagged impact still in the pipeline.

4.19 GNPA ratio of Public Sector Banks (PSBs) decreased from 9.4 per cent at end-September 2020 to 8.6 per cent at end-September 2021. The Stressed Advances ratio of PSBs increased marginally from 10.0 per cent to 10.1 per cent during the same period on account of rise in restructured advances.

4.20 The Capital Adequacy Ratio has continued to improve since 2015-16. Capital to Risk-weighted Asset Ratio (CRAR) of SCBs increased from 15.84 per cent at end-September 2020 to 16.54 per cent at end-September 2021 on account of its improvement for both public and private sector banks (Table 3). The improvement in CRAR levels of PSBs was due to capital infusion by the government alongside fund raising from the markets, while private sector banks tapped capital from market sources (Figure 11). Based on the capital position as on September 30, 2021, all Public Sector and Private Sector banks maintained the Capital Conservation Buffer (CCB) well over 2.5 per cent.

Figure 11: Capital Adequacy Ratio (per cent)



Source: RBI
Note: Number for September 2021 is based on offsite returns

4.21 SCBs' annualised return on assets (RoA) improved from 0.6 per cent at end-September 2020 to 0.8 per cent at end-September 2021, while their annualised return on equity (RoE) improved from 7.7 per cent to 9.0 per cent during the same period. The RoA and RoE for PSBs became positive in June 2020 and continued to be positive for the period ending September 2021, after recording negative profitability ratios during March 2016 to March 2020.

Table 3: NPAs, CRAR, RoE and RoA – SCBs, PSBs and Private Sector Banks (per cent)

Period	Scheduled Commercial Banks				Public Sector Banks				Private Sector Banks			
	GNPA Ratio	CRAR	RoE	RoA	GNPA Ratio	CRAR	RoE	RoA	GNPA Ratio	CRAR	RoE	RoA
Mar-19	9.07	14.32	-1.82	-0.15	11.59	12.2	-10.97	-0.66	5.25	16.07	5.49	0.60
Mar-20	8.21	14.78	0.78	0.07	10.25	12.85	-3.92	-0.25	5.45	16.55	3.20	0.35
Sep-20	7.49	15.84	7.68	0.64	9.39	13.51	4.33	0.26	4.93	18.21	10.04	1.10
Mar-21	7.33	16.30	7.64	0.65	9.11	14.04	4.63	0.28	4.94	18.42	10.01	1.14
Sep-21	6.93	16.50	9.04	0.79	8.57	14.4	8.47	0.52	4.73	18.65	10.01	1.17

Source: Offsite Returns, Global Operation, RBI

4.22 The net profit (profit after tax) for PSBs increased from ₹14,688 crore during first half of 2020-21 to ₹31,144 crore during first half of 2021-22. Similarly, the net profit for private sector banks increased from ₹32,762 crore to ₹38,234 crore during the same period. Overall, for SCBs, the net profit increased from ₹59,426 crore at end-September 2020 to ₹78,729 crore at end-September 2021.

Box 1: NATIONAL ASSET RECONSTRUCTION COMPANY LIMITED

Various available resolution mechanisms, including Insolvency and Bankruptcy Code (IBC), SARFAESI Act, Debt Recovery Tribunals, etc. have proved to be useful to certain extent, however a large stock of legacy NPAs are yet to be resolved. In addition to this, while there are 28 ARCs existing in India, due to limited capitalisation and low recoveries from existing portfolio, they are better placed for acquiring only smaller value loans. In order to resolve the legacy NPAs and clean up the banking system, the Union budget 2021-22 announced, "The high level of provisioning by Public Sector Banks of their stressed assets calls for measures to clean up the bank books. An Asset Reconstruction Company (ARC) Limited and Asset Management Company (AMC) would be set up to consolidate and take over the existing stressed debt and then manage and dispose of the assets to Alternate Investment Funds and other potential investors for eventual value realization." In line with this vision, two entities viz. National Asset Reconstruction Company Limited (NARCL), and India Debt Resolution Company Limited (IDRCL) have been formed.

NARCL was incorporated on 7th July 2021 and has received a certificate of registration from the RBI to commence the business of an Asset Reconstruction Company on 4th October 2021. NARCL will majorly be owned by Public Sector Banks. Canara bank is the Sponsor with shareholding of upto 12 per cent. NARCL would be capitalized through a combination of equity and debt from various Banks and will have a finite life of 5 years. It may acquire stressed assets of about ₹2 lakh crore appox in multiple phases within the extant regulations of RBI under 15:85 structure, implying that the consideration for acquisition will be 15 per cent in Cash and 85 per cent in Security Receipts. IDRCL was incorporated on 3rd September 2021 and will have minimum of 51 per cent ownership of Private sector Banks and balance will be held by Public Sector Banks.

NARCL and IDRCL's relationship will be defined through a debt management agreement where in NARCL will aggregate and acquire the stressed assets and IDRCL, in turn, will provide stressed assets management and resolution services to NARCL on an exclusive basis. The term of IDRCL shall be co-terminus with that of NARCL. NARCL will acquire assets by making an offer to the lead bank and the lead bank with an offer in hand (of NARCL) will run a 'Swiss Challenge' process wherein other interested ARCs / Bidders will be invited to better the anchor offer made by NARCL. Once NARCL is declared as a preferred bidder, NARCL shall initiate asset acquisition process and acquire the assets in the underlying Trusts. After acquiring the assets, IDRCL shall prepare and suggest the proposed restructuring / resolution plan, strategies, etc. for each Underlying Trust Assets. Post the approval of resolution from NARCL, IDRCL shall also assist in implementation of resolution. The assets acquired shall be resolved using existing resolution tools within the RBI framework for ARCs.

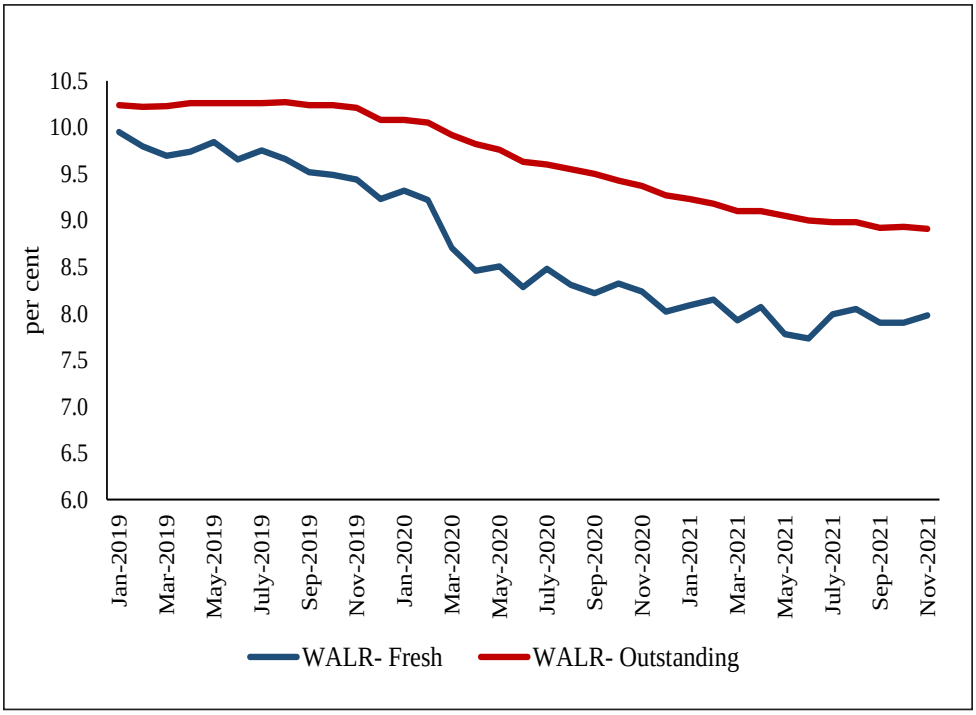
Resolution mechanisms of this nature typically require a backstop from Government as it imparts credibility and provides for contingency buffers. Globally, bad banks have been set up with Government participation in the form of equity along with other regulatory dispensations, for instance, Danaharta Nasional Berhad (Danaharta) in Malaysia or Asset Resolution Ltd (UKAR) in UK. Therefore taking the precedence from international practices, in India, the government has provided a guarantee of up to ₹ 30,600 crore, which will back Security Receipts (SRs) issued by

NARCL. The government guarantee will be valid for 5 years. Guarantee available for these SRs may be invoked on completion of resolution or liquidation as the case may be to cover the shortfall between actual realization and face value of the asset. The guarantee amount will be issued based on actual assets acquired by NARCL. This arrangement will not only safeguard the face value of Security Receipts but it will also take away the need for 100 per cent upfront capitalization of NARCL. The government will charge a guarantee fee on the amount which it guarantees, which will increase annually to incentivize the early and timely resolution.

MONETARY TRANSMISSION – BANK LENDING AND DEPOSIT RATES

4.23 RBI has reduced repo rate by 250 bps since February 2019 (the current easing cycle). The Weighted Average Lending Rate (WALR) on fresh rupee loans declined by 197 basis points and by 133 bps on outstanding loans during the period February 2019 to November 2021 (Figure 12). Large surplus systemic liquidity, forward guidance of continuing with the accommodative stance and the external benchmark system for pricing of loans in select sectors aided monetary transmission.

Figure 12: Weighted Average Lending Rates of SCBs



Source: RBI

4.24 During April-November 2021, the 1-year median Marginal Cost of funds-based Lending Rate (MCLR) declined by 10 bps; Weighted Average Lending Rates (WALR) on outstanding loans moderated by 19 bps, though it increased by 6 bps on fresh loans. The Weighted Average Domestic Term Deposit Rate (WADTDR) on outstanding deposits moderated by 24 bps (Table 4).

Table 4: Transmission from Repo Rate to Deposit and Lending Rates of SCBs (*Variation in basis points*)

Period	Repo rate	Term Deposit Rates		Lending Rates		
		Median TDR – Fresh deposits	WADTDR – Outstanding deposits	1-Year Median MCLR	WALR – Outstanding rupee loans	WALR – Fresh rupee loans
April 2021- November 2021	0	-1	-24	-10	-19	6
February 2019 - November 2021	-250	-213	-187	-155	-133	-197

Source: RBI
Note: WALR: Weighted Average Lending Rate. WADTDR: Weighted Average Domestic Term Deposit Rate; MCLR: Marginal Cost of Funds based Lending Rate. TDR: Term Deposit Rate.

4.25 The transmission has been slightly higher in public sector banks than private sector banks in the overall current monetary easing cycle, though it was higher for private banks in April-November 2021. The WALR on outstanding rupee loans fell by 135 bps for public sector banks and 123 bps for private banks, while the WALR on fresh rupee loans fell by 210 bps for public sector banks and 177 bps for private sector banks during February 2019- November 2021(Table 5). During April-November 2021, WALR on outstanding rupee loans reduced by 12 bps for public sector banks and 31 bps for private banks, whereas the WALR on fresh loans increased by 8 bps for public sector banks.

Table 5: Transmission across Bank Groups (*Variation in basis points*)

	February 2019 - November 2021			April 2021- November 2021		
	WALR – Outstanding rupee loans	WALR – Fresh rupee loans	WADTDR – Outstanding deposits	WALR – Outstanding rupee loans	WALR – Fresh rupee loans	WADTDR – Outstanding deposits
Public sector banks	-135	-210	-168	-12	8	-21
Private banks	-123	-177	-203	-31	-15	-32
SCBs#	-133	-197	-187	-19	6	-24

Source: RBI
SCBs include public, private and foreign banks

Box 2: DEPOSIT INSURANCE IN INDIA

The Deposit Insurance and Credit Guarantee Corporation (Amendment) Act, passed by the Parliament in 2021, made significant changes in the landscape of deposit insurance in India. The functions of the Deposit Insurance and Credit Guarantee Corporation (DICGC) are governed by the provisions of the DICGC Act, 1961 and the DICGC General Regulations, 1961. Under the Act, the Corporation is liable to pay the insured deposit amount to depositors of an

insured bank. Such liability may arise when an insured bank undergoes: (i) liquidation (sale of all assets on closing down of the bank) (ii) reconstruction or any other arrangement under a scheme, or (iii) merger or acquisition by another bank. Deposit insurance provided by DICGC covers all commercial banks, including Payment Banks, Small Finance Banks, Regional Rural Banks, Foreign Bank branches in India, Local Area Banks and Co-operative Banks in all States and Union Territories. DICGC registers a bank as insured immediately and automatically when a banking license is issued to it. The deposit insurance premium is compulsory for all insured banks and is paid by banks to DICGC and is not recovered from the depositors.

The deposit insurance coverage that began with ₹1500 in 1961 has been raised gradually to ₹1 lakh in 1993 but had been static thereafter till 2020. After the announcement in the Union budget 2020-21, the deposit insurance cover was increased from ₹1 lakh to ₹5 lakh per depositor per bank. With deposit insurance coverage of ₹5 lakh per depositor per bank, the number of fully protected accounts (247.8 crore) at end-March 2021 constituted 98.1 per cent of the total number of accounts (252.6 crore), as against the international benchmark of 80 per cent. In terms of amount, the total insured deposits (₹76.2 lakh crore) as at end-March 2021 constituted 50.9 per cent (up from about 30 per cent under ₹1 lakh cover) of the total assessable deposits (₹149.7 lakh crore) as against the international benchmark of 20-30 per cent. Bank-group wise, the percentage of insured deposits vis-à-vis total deposits is 84 per cent for RRBs, 70 per cent for cooperative banks, 59 per cent for SBI, 55 per cent for PSBs, 40 per cent for private sector banks and 9 per cent for foreign banks. Up to 31st March 2021, a cumulative amount of ₹5,763 crores has been paid towards claims since the inception of deposit insurance (₹296 crore in respect of 27 commercial banks and ₹5,467 crores in respect of 365 co-operative banks).

However, one continuing concern even after the increase in insured amount announced in February 2020 in the Union Budget 2020-21 was that when various restrictions, such as moratorium, etc are imposed on a bank by RBI, genuine depositors continued to face serious difficulties, and were unable to access their own money even to the extent of the insured value, despite deposit insurance being in place. Therefore, the Deposit Insurance And Credit Guarantee Corporation (Amendment) Act, 2021 was enacted. The following are the key features of the Amendment Act:

- *Introduced interim payments:* Interim payment will now be made by DICGC to depositors of those banks for whom any restrictions/ moratorium have been imposed by RBI under the Banking Regulation Act resulting in restrictions on depositors from accessing their own savings.
- *Timeline for interim payments*: Clear-cut timeline of maximum of 90 days has been fixed for providing interim payment to depositors. Within the first 45 days, the insured bank must furnish the details of all outstanding deposits to the Corporation. Within 30 days of the receipt of details, the Corporation will verify the authenticity of the claims and within 15 days of the verification, the Corporation must make the payment to such depositors.
- *Repayment by banks to DICGC*
  - *Deferment of repayments*: DICGC may defer repayments due to it from an insured bank after insurance pay out, on terms decided by DICGC's Board. It is in spirit with the rationale of interim payments, i.e., to help depositors while also enabling rescue efforts for the bank.

- *Timely repayment by the bank to DICGC*: To establish the priority of repayment to DICGC (both interest and principal amount), a provision for penal interest in case of delay has been put in the act.
- *No ceiling on premium*: The earlier act earlier had a ceiling of 15 paise on premium, which has been removed. Now, the ceiling on premium will be notified by DICGC, with the prior approval of RBI.

Since the Act came into force, over ₹1500 crore has been paid to over 1.2 lakh depositors against their claims, as of early January 2022.

BANK CREDIT GROWTH

4.26 The credit growth had been declining since 2019. The credit growth was 5.3 per cent at beginning of April 2021 and started to increase since then, but was still modest and stood at 7.3 per cent as on 17th December 2021. However, the credit growth has picked up sharply in December to 9.2 per cent as on 31st December 2021. In 2021-22, the risk capital (i.e. money raised from capital markets) has so far been more important than the banks in providing finance to the revival (Figure 13).

Figure 13: Bank Credit growth (YoY)

Source: RBI

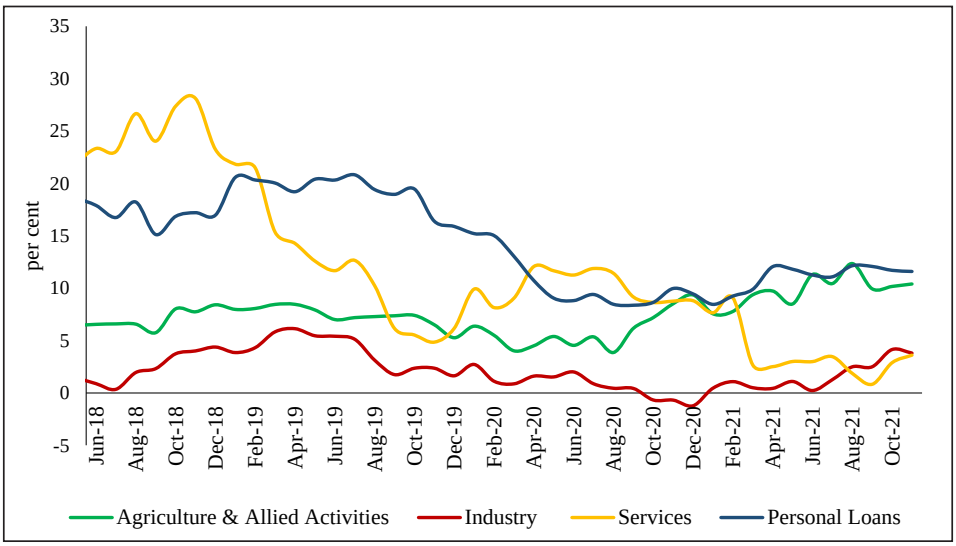
4.27 Non-food bank credit[1] growth that remained muted during much of the pandemic period and stayed at sub-6 per cent through Q1 of 2021-22, has gradually improved and stood at 9.3 per cent as on 31st December 2021, as against 6.6 per cent a year ago. This growth was driven by personal loans and agriculture sector. Deceleration in credit growth in the services sector continued though credit to industry showed signs of improvement.

4.28 Credit to agriculture continued to register robust growth, and was at 10.4 per cent (YoY) in November 2021, as compared with 7 per cent in November 2020. Credit growth to industry which contracted from October to December 2020 entered positive territory in January 2021. It is

[1]Non-food credit growth calculated based on Section - 42 return data, which covers all scheduled commercial banks (SCBs), while sectoral credit growth is based on sector-wise and industry-wise bank credit (SIBC) return, which covers select banks accounting for about 90 per cent of total non -food credit extended by all SCBs.

improving steadily since July 2021 and accelerated to 3.8 per cent in November 2021. Medium industries, particularly, have witnessed high double-digit growth for over a year and credit growth to the segment was at 48.7 per cent in November 2021, as compared with 25.7 per cent in November 2020. Credit growth to micro & small industries accelerated to 12.7 per cent in November 2021 from 0.6 per cent a year ago, reflecting effectiveness of various measures taken by the Government and the RBI to boost credit flow to the micro, small and medium enterprises (MSME) sector. Credit to large industries broadly remained at the same level as of last year.

Figure 14: Growth (YoY) in Sectoral Credit



Source: RBI

4.29 Services sector credit growth, however, is yet to recover. The subdued credit growth in the sector was due to sluggish growth in almost all segments. The growth in bank credit to NBFCs was 5.2 per cent in November 2021. In the current financial year, NBFCs directly raised finance from money and debt markets given the easy financial conditions. The bank credit growth to commercial real estate sector was 0.4 per cent in November 2021.

4.30 Growth in personal loans improved to double digits at 11.6 per cent in November 2021 as compared with 9.2 per cent in the previous year. Housing loans, the largest constituent of personal loans, registered growth of 8 per cent in November 2021. The growth of vehicle loans, the second largest constituent of personal loans improved to 7.7 per cent in November 2021 from 6.9 per cent in November 2020 (Table 6).

Table 6: Growth (YoY) in Bank Credit by Major Sectors (per cent)

Sector	Mar-18	Mar-19	Mar-20	Mar-21	Nov-20	Nov-21
Agriculture & allied activities	3.8	8.5	4.0	9.4	7.0	10.4
Industry	0.7	5.8	0.9	0.5	0.7	3.8
Micro & Small	0.9	0.7	-0.6	2.8	0.6	12.7
Medium	-1.1	-2.0	-0.2	34.1	25.7	48.7
Large	0.8	7.1	1.1	-1.3	-0.4	0
Services	13.8	15.3	9.0	2.7	8.2	3.6

Trade	9.1	6.6	5.3	12.7	15.2	8.7
Commercial Real Estate	0.1	22.4	14.7	1.3	3.5	0.4
Non-Banking Financial Companies (NBFCs)	26.9	48.2	27.3	0.2	4.7	5.2
Personal Loans	17.8	20.0	13.0	9.9	9.2	11.6
Housing (Including Priority Sector Housing)	13.3	21.1	13.3	9.1	8.4	8.0
Vehicle Loans	11.3	23.7	7.2	6.2	6.9	7.7

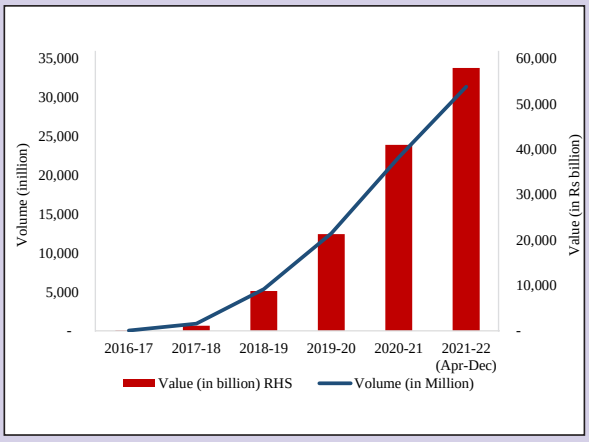
Source: RBI
Note: Data is provisional and relates to select banks which cover about 90 per cent of total non-food credit extended by all scheduled commercial banks.

Box 3: DIGITAL PAYMENTS

Financial transactions have been seeing high growth over the last few years with multiple avenues for making digital payments which are growing over time.

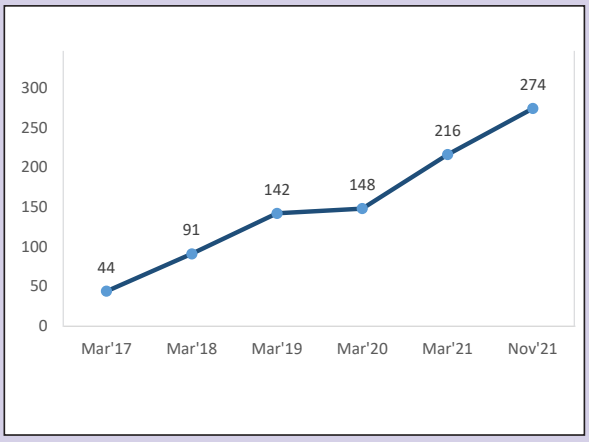
Unified Payments Interface (UPI) is currently the single largest retail payment system in the country in terms of volume of transactions, indicating its wide acceptance (Figure 3A & 3B). In December 2021, 4.6 billion transactions worth ₹8.26 lakh crore were carried out by UPI. One of the initial objectives of UPI was to replace cash for low value transactions. As per detailed transaction data of NPCI, 50 per cent of transactions through UPI were below ₹200. On 1st November 2018, 'UPI as a payment option in IPO' was introduced as a new payment channel to the retail investors by SEBI. In April-November 2021, UPI processed more than 24.26 million One Time Mandate create transaction of value ₹44,381 crore. The transaction limit for such transactions which was increased by RBI from ₹1 lakh to ₹2 lakh in March 2020 was further increased to ₹5 lakh in December 2021. RBI and the Monetary Authority of Singapore announced a project to link UPI and PayNow, which is targeted for operationalization by July 2022. Bhutan recently became the first country to adopt UPI standards for its QR code. It is also the second country after Singapore to have BHIM-UPI acceptance at merchant locations.

Figure 3A: UPI Payments



Source: NPCI

Figure 3B: Number of banks in UPI



Source: NPCI

Another real-time fund transfer platform available 24x7x365 is Immediate Payment Service (IMPS). In April-December 2021, transactions worth ₹29,349 billion have been processed on IMPS. On 8th October 21, RBI increased the daily limit of IMPS transactions from ₹2 lakh to ₹5 lakh which should further help in boosting digital payments.

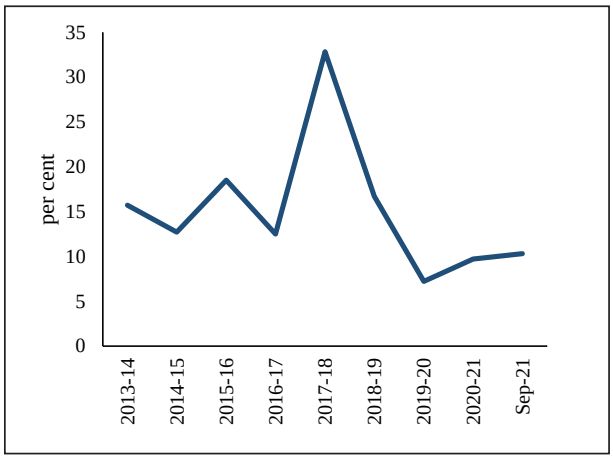
Another digital payment solution launched in August 2021, e-RUPI is a person-specific, and purpose-specific digital voucher where it is not required for the customer to have a bank account and is operable on basic phones, even in areas which lack an internet connection. The first use case of e-RUPI was implemented for COVID-19 vaccination program which saw more than 2.2 lakh beneficiaries being issued the voucher.

The Digital Payments Index of RBI, captures the extent of digitization of payments across the country. The index captures (i) Payment Enablers (weight 25%), (ii) Payment Infrastructure – Demand-side factors (10%), (iii) Payment Infrastructure – Supply-side factors (15%), (iv) Payment Performance (45%) and (v) Consumer Centricity (5%). The Digital Payments Index increased from 100 in March 2018 (base period) to 304.06 in September 2021.

NON-BANKING FINANCIAL COMPANIES (NBFCs) SECTOR

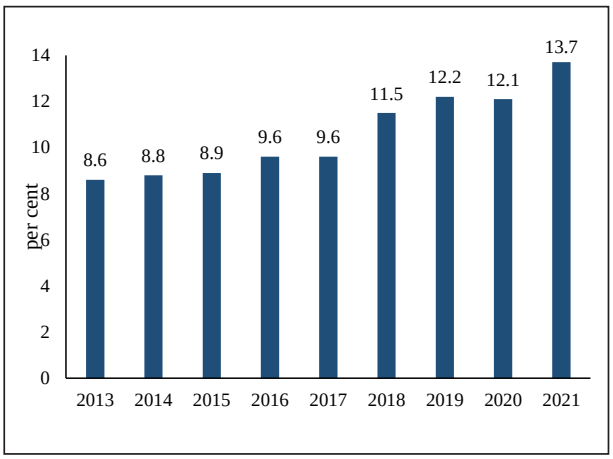
4.31 Credit growth of NBFCs continued to remain sluggish in 2021-22 so far (Figure 15). The total credit of NBFC sector[2] increased marginally from ₹27.53 lakh crore in March 2021 to ₹28.03 lakh crore in September 2021. The credit intensity of NBFCs, measured by NBFC credit as a ratio of GDP has been rising consistently and stood at 13.7 at end March 2021 (Figure 16).

Figure 15: Credit growth (YoY) from NBFCs



Source: RBI
Note: Data for September 2021 pertains only to Deposit taking NBFC and non-deposit taking systemically important NBFCs based on offsite returns data

Figure 16: NBFC's Credit to GDP Ratio



Source: Trends and Progress of Banking in India, RBI
Note: Data is at end- March; GDP data used is GDP at current market prices (base:2011-12

4.32 Industry remained the largest recipient of credit extended by the NBFC sector, followed by retail loans and services (Figure 17). The share of large industry in the total credit to industry by NBFC sector increased from about 82 per cent at end March 2019 to 90 per cent at end September 2021.

[2] The sector represents top 300 NBFCs based on their asset size as of September 2021

Figure 17: Sectoral distribution of NBFC Credit

Source: Supervisory Returns, RBI.
Note: Number for 2020 and 2021 indicate end- March figures. Numbers for September 2021 are survey calculations from the Report on Trend and Progress of Banking in India 2020-21

4.33 Total assets of NBFCs increased from ₹36.37 lakh crore in September 2020 to ₹42.05 lakh crore in September 2021, resulting in YoY growth of 15.61 per cent. Banks' exposure to NBFCs increased (in the form of bank lending and investment in Non-Convertible Debenture (NCDs) and Commercial Paper (CPs)) from ₹8.44 lakh crore in September 2020 to ₹9.16 lakh crore in September 2021, recording YoY growth of 8.5 per cent.

4.34 The external liabilities of NBFCs in the form of secured and unsecured borrowings and public deposits increased by 7.95 per cent (on a YoY basis) in September 2021. While borrowings from other financial institutions marginally increased from ₹58,650 crore in March 2021 to ₹59,525 crore in September 2021 (4.34 per cent YoY growth), market borrowings - NCDs and CPs - increased from ₹10.56 lakh crore in September 2020 to ₹11.41 lakh crore in September 2021 (8.09 per cent YoY growth).

4.35 GNPA ratio of NBFCs was higher at 6.55 per cent at end-September 2021, as compared to 6.06 per cent at end-March 2021. However, their net NPA ratio remained at 2.93 per cent at end-September 2021 same as in March 2021. As against the regulatory requirement of 15 per cent, CRAR for the NBFC sector stood at 26.64 per cent at end-September 2021.

Box 4: FACTORING IN INDIA

Factoring is an important source of liquidity worldwide, especially for MSMEs. Factoring is a transaction where an entity sells its receivables (dues from a customer) to a third party (a 'factor' like a bank or NBFC) for immediate funds. All or part of invoice can be sold to a factor for getting money immediately at competitive interest rate. The factor then collects payments from the buyer of goods and earns a commission in the form of some interest. This is different from bill discounting. In bill discounting, a bank or NBFC gives a certain percentage of the total outstanding value of invoices to seller and in most cases the seller has to take on the responsibility for payment of invoices by the buyer to the factor. However, in case of factoring, the factor takes on the responsibility for the collection of invoices. There are different types of factoring: 'with recourse' factoring where seller has to

pay back the advance obtained from the factor if buyer of goods fails to pay and 'without recourse' factoring where factor bears the risk of default in case of non-payment by buyer of goods.

To solve the liquidity issues of MSMEs and lay down the basic legal framework for factoring in India, the Factoring Regulation Act 2011 was enacted. As per the Factoring Act 2011, four types of entities were allowed to engage in factoring business: Banks, Statutory Corporations (which were exempted from registration under Section 5), NBFCs (which have to obtain registration from RBI) and companies (which have to obtain specific registration from RBI under Section 3). As per the Factoring Act 2011, RBI grants registration to only those NBFCs which do factoring as "principal business", i.e. whose financial assets in the factoring business constitute at least 50 per cent of its total assets and income derived from factoring business is not less than 50 per cent of its gross income. Under these provisions, only 7 NBFCs called 'NBFC-Factors' were in factoring business (due to "principal business" condition) – Canbank Factors, India Factoring and Finance, SBI Global Factors, Siemens Factoring, Bibby Financial Services, IFCI Factors and Pinnacle Capital Solutions. This 'principal business' restriction on NBFCs in the Act had limited the scope of factoring.

Meanwhile, RBI constituted an Expert Committee on MSMEs under the Chairmanship of Shri U.K. Sinha in January 2019 to suggest long–term measures for the economic and financial sustainability of the MSME Sector. Among various other suggestions related to the MSME sector as a whole, the committee recommended that NBFCs other than those whose principal business is factoring should also be permitted to carry out factoring business. Hence, the Factoring Regulation (Amendment) Act, 2021 was enacted with the amendments in line with the recommendations of UK Sinha Committee. The key changes brought about are:

- Removal of principal business criteria has significantly increased the number of eligible NBFCs that can undertake factoring business.
- The time period for registration of invoice and satisfaction of charge upon it may be specified by the Government by rules to streamline the process and prevent frauds through dual financing.
- At present, factoring is done either manually or on Trade Receivable Discounting System (TReDS)[3]. Now, the amended Act and new Rules and Regulations allow the concerned TReDS platform to register charge directly with Central Registry of Securitization Asset Reconstruction and Security Interest (CERSAI) on behalf of the factors using the platform, so as to make the process operationally efficient, promote the use of TReDS and reduce procedural burden on factors.
- Definitions of "assignment", "factoring business" and "receivables" have been amended to bring them in consonance with international definitions.
- Regulation making power was given to RBI for the manner of granting certificate of registration under Section 3, and the manner of filing of particulars of transactions with the Central Registry by TReDS entities on behalf of factors under Section 19. RBI has notified these Regulations in January 2022.

The amendments have liberalized the restrictive provisions in the Act and at the same time ensure that a strong regulatory / oversight mechanism is in place under RBI. Overall, this change would lead to widening of factoring ecosystem in the country and help MSMEs significantly, by providing added avenues for availing credit facility.

[3]It is an electronic exchange that allows transparent and online selling of receivables by MSMEs. In TReDS, the seller gets multiple financiers to choose from, option of various interest rates, and without any collateral helping the seller to get the best deal in transparent manner. Government has taken measures to promote TReDS by mandating big corporates/CPSEs to register on TReDS.

DEVELOPMENT IN CAPITAL MARKETS

1. PRIMARY MARKET

A. Equity

4.36 In April-November 2021, IPOs of 75 companies have listed, garnering ₹89,066 crore, as compared to 29 companies raising ₹14,733 crore during April- November 2020, indicating stupendous rise of 504.5 per cent in fund mobilization. The money raised by IPOs has been greater than what has been raised in any year in last decade by a large margin. Amount raised through rights issues however declined by 62.6 per cent to ₹22,659 crore in April-November 2021, as compared to ₹60,608 crore during corresponding period of previous year. Though amount raised through Qualified Institutional Placements (QIP) declined by 52.9 per cent, amount raised by way of preferential allotment increased by 67.3 per cent during April-November 2021, as compared to same period previous year. Overall, during April-November 2021, ₹1.81 lakh crore have been raised through equity issues through diverse modes viz., public offerings, rights, QIP and preferential issues (Table 7).

Table 7: Primary Market Resource Mobilisation through Public and Rights Issues (Equity)

Period	Public (IPO+FPO)		Rights		QIPs		Preferential issues		Total	
	No. of issues	Amount (₹ crore)	No. of issues	Amount (₹ crore)	No. of issues	Amount (₹ crore)	No. of issues	Amount (₹ crore)	No. of issues	Amount (₹ crore)
2016-17	106	29,210	12	3,274	20	8,464	409	44,235	547	85,183
2017-18	189	78,497	23	21,268	54	71,033	420	59,527	686	2,30,325
2018-19	136	21,720	9	2,001	14	8,678	402	2,10,159	561	2,42,559
2019-20	62	21,382	17	55,667	14	54,389	284	1,74,886	377	3,06,325
2020-21	57	46,060	21	64,059	31	78,738	234	40,940	343	2,29,797
April-Nov 2020	30	29,733	15	60,608	16	56,725	145	25701	206	1,72,768
April-Nov 2021	75	89,066	18	22,659	23	26,704	233	43,004	349	1,81,433

Source: SEBI

4.37 The year 2021-22 so far has been an exceptional year for the primary markets with a boom in fundraising through IPOs by many new age companies/tech start-ups/unicorns. The exuberance associated with the listings manifested in huge oversubscriptions by retail, High Net worth Individuals (HNIs) and institutional investors and stellar listing gains have pushed more and more companies to tap the markets (Table 8). The tremendous response by all categories of investors in IPOs of companies was reflective of not only the confidence in markets, but also that in corporate sector performance and prospects of the economy in the long run.

Table 8: IPO Oversubscription trends

Oversubscription Range (No. of times oversubscribed)	No. of IPOs listed (April-November 2021)
>100	8
≥51 ≤100	11
≥21 ≤ 50	6
≥ 11 ≤ 20	11
≥1 ≤ 10	39
< 1	Nil
Total	**75**

Source: SEBI

B. Debt

4.38 On the debt side, the funds raised through corporate bonds was around ₹3.7 lakh crore in April- November 2021. The amount raised through public issues in debt doubled as 20 public issues raised ₹9,132 crore during April-November 2021, as compared to 10 issues which raised ₹3,871 crore during the corresponding period of previous year. However, number of issues and amount mobilized through private placement declined as ₹3.6 lakh crore was raised through 851 issues during April-November 2021, as compared to ₹4.9 lakh crore mobilized through 1,299 issues during April-November 2020 (Table 9). Overall, debt mobilization slowed, and this contrast with equity market suggest an increased appetite for risk among investors.

Table 9: Resource Mobilization in Corporate Bond Market

Year	Public Issues		Private Placement	
	No. of issues	Amount (₹ crore)	No. of issues	Amount (₹ crore)
2016-17	14	29,093	3,377	6,40,716
2017-18	8	5,173	2,706	5,99,147
2018-19	25	36,679	2,358	6,10,318
2019-20	34	14,984	1,787	6,74,703
2020-21	18	10,588	1,995	7,71,840
April-Nov 2020	10	3,871	1,299	4,88,071
April-Nov 2021	20	9,132	851	3,62,458

Source: SEBI

4.39 In addition to equity and debt, corporates are also diversifying into a large number of new instruments such as hybrids & convertibles, Real Estate Investment Trusts (REITs), Infrastructure Investment Trusts (InvITs) etc. (Table 10). Resource mobilization by InvITs was ₹15,506 crore in April-November 2021.

Table 10: Fund Raising by REITs/InvITs

Mode of Fund raising	2019-20		2020-21		Apr 2021-Nov 2021	
	No.	Amount (₹ crore)	No.	Amount (₹ crore)	No.	Amount (₹ crore)
Total funds mobilised by REITs	0	0	3	14,300	0	0
Listed REITs	0	0	3	14,300	0	0
Total funds mobilised by InvITs	4	11,496	2	40,432	6	15,506
Listed InvITs	3	7,744	1	25,215	5	15,125
Unlisted InvITs	1	3,753	1	15,217	1	382

Source: SEBI

Box 5: MSCI Emerging Markets Index and India's weight

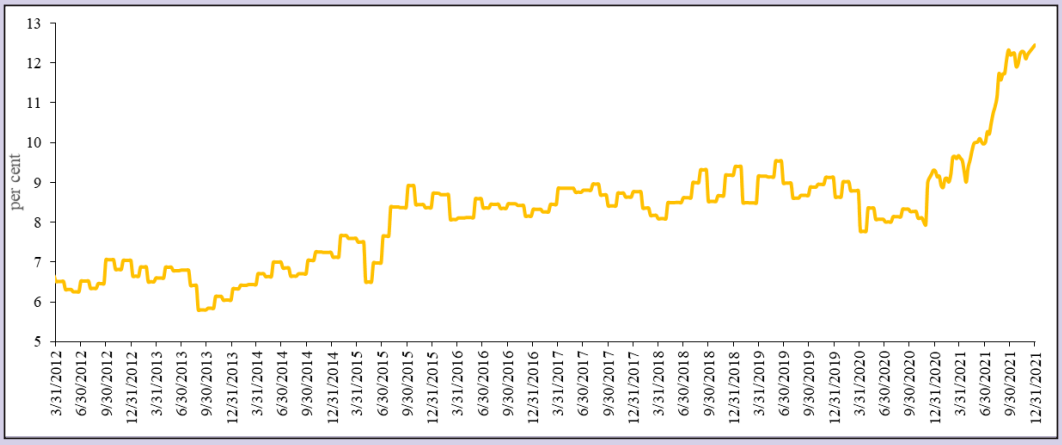
A key aspect of Foreign Portfolio Investments (FPI) are global indices such as MSCI with over US$ 16.3 trillion (equity) assets benchmarked against them (as of June 30, 2021). One of the most popular MSCI indices is the MSCI Emerging Market (EM) index which tracks equity performance capturing large and mid-cap companies across 25 emerging market countries including India. Launched in 2001, the MSCI EM index today covers 1420 listed entities across emerging market economies. Companies must satisfy certain minimum criteria relating to full market capitalisation, free-float market capitalisation, stock liquidity and foreign inclusion factor, among others to be included in the index. Many global institutional investors use MSCI's EM Index and several such indices covering other markets and themes as part of their passive investment strategy allocating capital in line with the benchmark indices. India's weight in the MSCI EM Index plays an important role in attracting FPI investments in its equity market (Figure 5A).

In June 2017, MSCI had announced that beginning June 2018, China A-shares[4] would be included in MSCI -EM index in a phased manner. This meant a gradual reduction in weights of all other countries. Consequently, India's weight in MSCI-EM index reduced from 9.32 per cent in August 2018 to 8.3 per cent in August 2020.

Later on, Government relaxed the FPI limit for Indian companies to the applicable Foreign Direct Investment (FDI) sectoral limit (which is higher) with effect from April 1, 2020. Consequently, India's Foreign Ownership Limits[5] (FOL) in its Global indices increased effective December 1, 2020. Resultantly, MSCI India's Foreign Inclusion Factor[6] (FIF) rose by 7 per cent from 0.39 to 0.42. Accordingly, India's weight in MSCI EM index immediately increased to 9.2 per cent from 8 per cent. Remarkably, the increase in FPI limit to the sectoral cap has acted as a catalyst for increasing weightage of Indian securities in other major equity indices as well such as MSCI APxJ (100 bps), MSCI AC World Index (16bps). As of December 2021, India's weight in the MSCI EM index is 12.45 per cent and 106 listed Indian entities having AUM of US$ 2,379 billion are a part of MSCI EM index(Figure 5B).

The foreign interest in Indian capital markets has gone up as reflected in the large inflows. As per data available from NSDL, 2020-21 witnessed FPI inflows of over Rs. 2.74 lakh crore into the Indian equity markets.

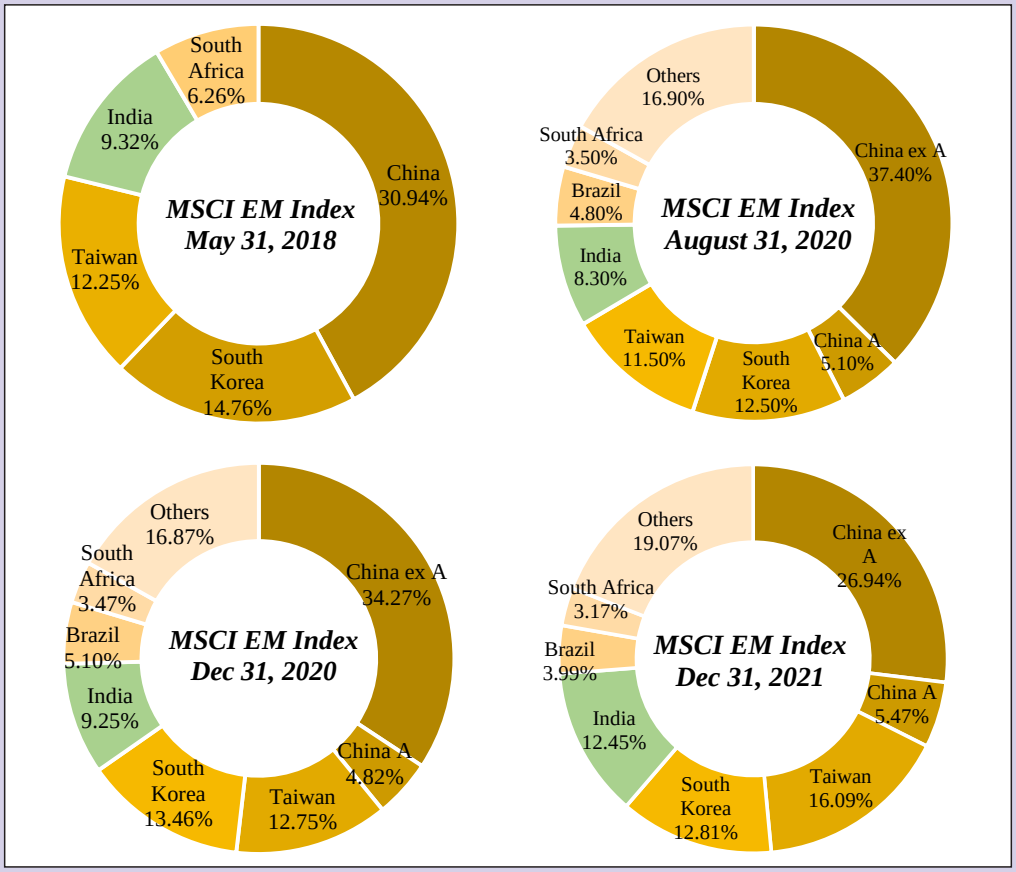
Figure 5A: India weight at MSCI EM Index



Source: RIMES, MSCI, Morgan Stanley Research

[4]A shares represent publicly listed Mainland Chinese companies that trade on either Shanghai stock exchange or Shenzen stock exchange.
[5]The extent to which foreign investors can invest in a listed security of a country. An increase in FPI limits, increases the room available for foreign investment.
[6]Foreign inclusion factor of a security is defined as the proportion of shares outstanding that are deemed to be available for purchase in the public equity markets by international investors.

Figure 5B: Composition of the MSCI EM Index: How has India's weight changed over time



Source: RIMES, MSCI, Morgan Stanley Research

Trends in Retail participation in the Capital Market

4.40 With continuing buoyant trend in Indian stock markets, participation by individual investors[7] in equity cash segment has increased and the share of individual investors in total turnover at NSE increased from 38.8 per cent in 2019-20 to 44.7 per cent in April-October 2021 (Table 11). The substantial increase in share of individual investors in 2020-21 and 2021-22 can partly be ascribed to the increase in new investor registrations witnessed since February 2020. In April-November 2021, nearly 221 lakh individual Demat accounts were added.

Table 11: Share of Individual Investors in equity cash segment turnover (NSE) (in per cent)

Year	Share of individual Investors
2016-17	36.0
2017-18	39.0
2018-19	39.0
2019-20	38.8
2020-21	45.0
April-October 2021	44.7

Source: SEBI

[7]Individual investors includes individual domestic investors,NRIs, sole proprietorship firms and HUFs, Others: Partnership Firms/LLP, Trust / Society, Depository Receipts, Statutory Bodies, OCB, FNs, etc.

2. Mutual Fund Activities

4.41 The net Assets Under Management (AUM) of mutual fund industry rose by 24.4 per cent to ₹37.3 lakh crore at the end of November 2021 from ₹30.0 lakh crore end of November 2020. Net resource mobilization by mutual funds was ₹2.54 lakh crore during April-November 2021, as compared to ₹2.73 lakh crore during April-November 2020 (Table 12).

Table 12: Resource Mobilization through Mutual Funds

Year	AUM (₹ crore)	Gross resource mobilisation (₹ crore)	Gross Redemption (₹ crore)	Net resource mobilisation (₹ crore)	No. of folios
2016-17	17,54,619	1,76,15,549	1,72,72,500	3,43,049	5,53,99,631
2017-18	21,36,036	2,09,98,652	2,07,26,855	2,71,797	7,13,47,301
2018-19	23,79,663	2,43,94,362	2,42,84,661	1,09,701	8,24,56,411
2019-20	22,26,203	1,88,13,458	1,87,26,157	87,301	8,97,46,051
2020-21	31,42,764	86,39,167	84,24,424	2,14,743	9,78,65,529
April-Nov 2020	30,00,904	57,90,831	55,17,814	2,73,017	9,36,79,333
April-Nov 2021	37,33,702	58,64,573	56,10,534	2,54,039	11,69,91,489

Source: SEBI

INVESTMENT BY FOREIGN PORTFOLIO INVESTORS (FPIs)

4.42 During April-November 2021, FPIs made a net investment of ₹24,124 crore in Indian securities, 82.8 per cent lower that what was made in same period previous year. As of November 2021, cumulative net investment by FPIs increased by 9.2 per cent to US$288.4 billion from US$ 264 billion at end November 2020 (Table 13).

Table 13: FPI Investment in Indian securities

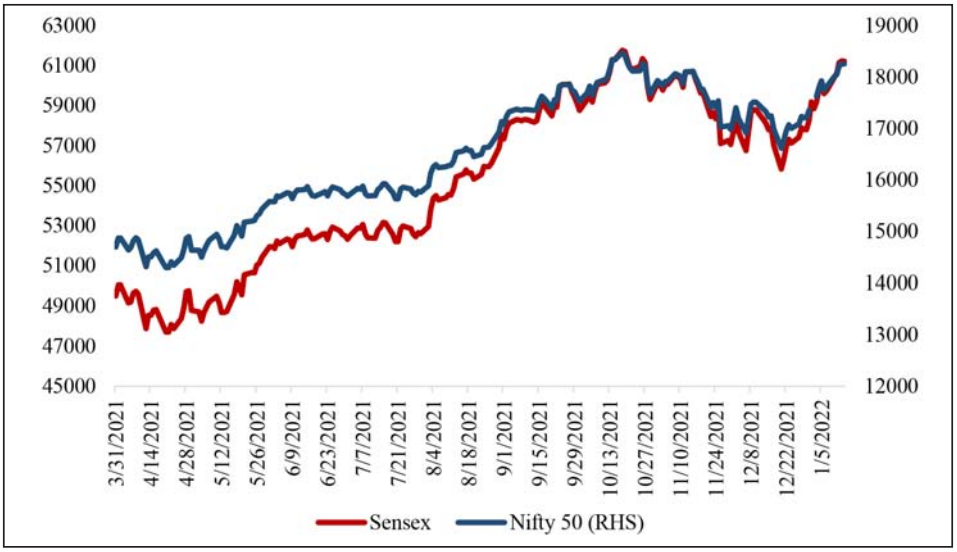
Year/Month	Gross Purchase (₹ crore)	Gross Sales (₹ crore)	Net Investment (₹ crore)	Net Investment (US $ mn.)	Cumulative Net Investment (US $ mn.)
2016-17	15,07,028	14,58,617	48,411	7,600	2,31,180
2017-18	17,28,360	15,83,679	1,44,681	22,466	2,53,645
2018-19	16,40,810	16,79,741	-38,931	-5,499	2,48,147
2019-20	19,05,517	19,33,046	-27,529	-3,042	2,45,105
2020-21	23,20,289	20,53,189	2,67,100	36,180	2,81,293
April-Nov 2020	13,75,673	12,35,286	1,40,387	18,896	2,64,008
April-Nov 2021	16,23,155	15,99,030	24,124	3,371	2,88,364

Source: NSDL

INDIAN BENCHMARK INDICES

4.43 The benchmark stock market indices in India - Sensex and Nifty 50, increased by 17.7 per cent and 18.1 per cent, respectively during April-December 2021. Driven by good corporate earnings, sharp rise in COVID-19 vaccination and opening up of business establishment across the country, Sensex and Nifty scaled up to touch its peak at 61,766 and 18,477 respectively on 18th October 2021 (Figure 18). The Sensex and Nifty benchmark indices fell after that, but started to rise again and stand at 61,223 and 18,256 respectively as on 14th January 2022.

Figure 18: Movement of Indian Benchmark Indices



Source: BSE, NSE

4.44 Among major emerging market economies, Indian markets outperformed its peers during April-December 2021. Among the select developed markets, S&P 500 index and NASDAQ Composite index, recorded strong gains and rose by 20.0 per cent and 18.1 per cent, respectively (Table 14).

Table 14: Performance of major stock market indices in 2021-22 across the World

Index	As on 31/03/2021	As on 31/12/2021	% change in Apr-Dec 2020	% change in Apr-Dec 2021
Indian Markets				
Nifty 50	14,691	17,354	62.6	**18.1**
S&P BSE Sensex	49,509	58,254	62.0	**17.7**
Emerging Markets				
Taiwan TAIEX	16,431	18,219	51.8	10.9
FTSE/JSE All Share Index, S. Africa	66,485	73,709	33.5	10.9
MOEX Russia Index	3,542	3,787	31.1	6.9
Shanghai Composite, China	3,442	3,640	26.3	5.7
KOSPI, S. Korea	3,061	2,978	63.8	-2.7
Brazil Ibovespa	1,16,634	1,04,822	63.0	-10.1

Developed Market				
S&P 500, US	3,973	4,766	45.3	20.0
Nasdaq Composite, US	13,247	15,645	67.4	18.1
CAC 40, France	6,067	7,153	26.3	17.9
Dow Jones Industrial Average, US	32,982	36,338	39.6	10.2
FTSE 100, UK	6,714	7,385	13.9	10.0
DAX, Germany	15,008	15,885	38.1	5.8
Straits Times, Singapore	3,165	3,124	14.6	-1.3
Nikkei 225, japan	29,179	28,792	45.1	-1.3
Hang Seng, Hong Kong	28,378	23,398	15.4	-17.6

Source: Refinitiv Datastream

4.45 During April-December 2021, India VIX, which indicates market's expectation of volatility in near term i.e. next 30 calendar days, peaked to 23.7 on 3rd May 2021 and started reducing subsequently. It picked up briefly in November 2021 before reducing again. Overall, VIX decreased 21.4 per cent during April-December 2021.

Figure 19: India VIX

Source: NSE

INSURANCE SECTOR

4.46 Internationally, the potential and performance of the insurance sector are generally assessed on the basis of two parameters, *viz.*, insurance penetration and insurance density. Insurance penetration is measured as the percentage of insurance premium to GDP and insurance density is calculated as the ratio of premium to population (measured in US$ for convenience of international comparison).

4.47 In India, insurance penetration was 2.71 per cent in 2001 and has steadily increased to 4.2 per cent in 2020. As of 2020, the penetration for life insurance in India is 3.2 per cent and non-life insurance penetration is 1 per cent (Table 15 and 16). While India is at par with international average in terms of insurance penetration for life insurance, we lag behind in terms of non-life

insurance. Globally, insurance penetration was 3.3 per cent for the life segment and 4.1 per cent for the non-life segment in 2020.

Table 15: Penetration and Density in Life Insurance in India

Particulars	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Insurance Penetration	3.40	3.17	3.10	2.60	2.72	2.72	2.76	2.74	2.82	3.20
Insurance Density	49.0	42.7	41.0	44.0	43.2	46.5	55.0	55.0	58.0	59.0

Source: SwissRe, Sigma various issues
Note: Insurance Penetration in per cent and Insurance Density in US$

Table 16: Penetration and Density in Non-Life Insurance in India

Particulars	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Insurance Penetration	0.70	0.78	0.80	0.70	0.72	0.77	0.93	0.97	0.94	1.00
Insurance Density	10.0	10.5	11.0	11.0	12.0	13.2	18.0	19.0	20.0	19.0

Source: SwissRe, Sigma various issues
Note: Insurance Penetration in per cent and Insurance Density in US$

4.48 The insurance density in India increased from $11.5 in 2001 to $78 in 2020. In 2020, density for Life insurance in India is $59 and Non-Life insurance is $19, much lower than global standards. Globally, insurance density was $360 for the life segment and $449 for the non-life segment respectively in 2020 (Table 17 and 18).

Table 17: International Comparison of Insurance Penetration (in per cent)

S.No.	Country*	2019			2020		
		Life	Non-Life	Total	Life	Non-Life	Total
	America						
1	USA	2.9	8.5	11.4	3.0	9.0	12.0
2	Canada	3.1	4.6	7.7	3.5	5.2	8.7
3	Brazil	2.3	1.8	4.0	2.3	1.8	4.1
4	Mexico	1.1	1.3	2.4	1.2	1.4	2.6
	Europe-Middle East-Africa						
5	France	6.0	3.2	9.2	5.1	3.5	8.6
6	Germany	2.6	3.7	6.3	2.8	4.0	6.8
7	Italy	6.2	2.2	8.3	6.3	2.3	8.6
8	Netherlands	1.6	7.6	9.2	1.5	8.1	9.6
9	Spain	2.2	2.9	5.1	1.9	3.2	5.2
10	Sweden	5.4	1.8	7.2	5.8	1.8	7.6
11	Switzerland	4.3	4.1	8.4	4.3	4.1	8.4
12	UK	8.0	2.3	10.3	8.8	2.3	11.1

13	Pakistan	0.6	0.3	0.9	0.5	0.3	0.8
14	Russia	0.4	1.0	1.4	0.4	1.0	1.4
15	South Africa	10.7	2.7	13.4	11.2	2.5	13.7
	Asia Pacific						
16	**India#**	**2.8**	**0.9**	**3.8**	**3.2**	**1.0**	**4.2**
17	China	2.3	2.0	4.3	2.4	2.1	4.5
18	Japan#	6.7	2.3	9.0	5.8	2.4	8.1
19	Indonesia	1.4	0.6	2.0	1.4	0.5	1.9
20	Malaysia#	3.4	1.4	4.7	4.0	1.5	5.4
21	Singapore	6.0	1.6	7.6	7.6	1.9	9.5
22	South Korea#	5.8	5.0	10.8	6.4	5.2	11.6
23	Taiwan	16.5	3.5	20.0	14.0	3.4	17.4
24	Thailand	3.3	1.7	5.0	3.4	1.9	5.3
25	Sri Lanka	0.6	0.7	1.3	0.5	0.6	1.2
26	New Zealand	0.9	4.3	5.1	0.8	4.1	4.9
27	Australia	1.5	3.4	5.0	1.1	3.6	4.7
	World	**3.4**	**3.9**	**7.2**	**3.3**	**4.1**	**7.4**

Source: Swiss Re, Sigma Volumes 4/2020 and 3/2021
Note: * Data pertains to the calendar year 2019 & 2020, # Data pertains to financial year 2019-20 & 2020-21, @ Rounding off difference

Table 18: International Comparison of Insurance Density (in US$)

S.No.	Country*	2019			2020		
		Life	Non-Life	Total	Life	Non-Life	Total
	America						
1	USA	1,915	5,580	7,495	1,918	5,754	7,673
2	Canada	1,421	2,128	3,548	1,532	2,243	3,775
3	Brazil	196	155	351	151	120	271
4	Mexico	111	128	239	99	116	214
	Europe-Middle East-Africa						
5	France	2,413	1,306	3,719	1,959	1,359	3,317
6	Germany	1,222	1,712	2,934	1,281	1,827	3,108
7	Italy	2,039	725	2,764	1,972	721	2,692
8	Netherlands	832	3,990	4,822	799	4,223	5,022
9	Spain	654	854	1,508	525	871	1,396
10	Sweden	2,783	946	3,729	2,993	945	3,938
11	Switzerland	3,502	3,332	6,835	3,667	3,557	7,224

12	UK	3,383	978	4,362	3,574	949	4,523
13	Pakistan	8	4	12	6	3	10
14	Russia	43	113	157	41	105	146
15	South Africa	643	160	803	560	124	684
	Asia Pacific						
16	**India#**	**58**	**20**	**78@**	**59**	**19**	**78**
17	China	230	201	430	241	214	455
18	Japan#	2,691	930	3,621	2,329	951	3,280
19	Indonesia	58	24	82	54	21	75
20	Malaysia#	380	156	536	415	153	568
21	Singapore	3,844	1,028	4,872	4,528	1,110	5,638
22	South Korea#	1,822	1,544	3,366	2,050	1,691	3,741
23	Taiwan	4,129	865	4,993	3,861	938	4,800
24	Thailand	256	134	389	244	139	383
25	Sri Lanka	23	29	51	21	24	45
26	New Zealand	354	1,790	2,144	349	1,678	2,027
27	Australia	827	1,875	2,702	568	1,880	2,448
	World	**379**	**439**	**818**	**360**	**449**	**809**

Source: Swiss Re, Sigma Volumes 4/2020 and 4/2021
Note: * Data pertains to the calendar year 2019 & 2020, # Data pertains to financial year 2019-20 & 2020-21, @ Rounding off difference

4.49 During 2020-21, the gross direct premium (within and outside India) of Non-Life insurers was ₹2,02,082 crore, as against ₹1,92,193 crore in 2019-20, registering a growth of 5.2 per cent. Motor and health segments contributed a significant portion of the growth. Life insurance industry recorded a premium income of ₹6,28,731 crore during 2020-21, as against ₹5,72,910 crore in the previous financial year, registering a growth of 9.74 per cent. While renewal premium accounted for 55.7 per cent of the total premium received by the life insurers, new business contributed the remaining 44.3 per cent.

PENSION SECTOR

4.50 The total number of subscribers under New Pension Scheme (NPS) and Atal Pension Yojana (APY) increased from 374.32 lakh as on September 2020 to 463 lakh as on September 2021, recording a growth of 23.7 per cent over the year. The overall contribution under NPS grew by more than 29 per cent during the period September 2020 - September 2021. Maximum growth in contribution was registered under All Citizen model (51.29 per cent) followed by Corporate Sector (42.13 per cent), APY (38.78 per cent), State Government Sector (28.9 per cent), and Central Government Sector (22.04 per cent). The Assets under Management (AUM)

of NPS and APY stand at ₹6.67 lakh crore at end September 2021, as compared to ₹4.95 lakh crore at the end of September 2020, thereby recording an overall growth (YoY) of 34.8 per cent (Table 19).

Table 19: Status of NPS and APY

	No. of Subscribers (in Lakh)		YoY	Contribution (₹ Crore)		YoY	AUM (₹ Crore)		YoY
	Sep-20	Sep-21	%	Sep-20	Sep-21	%	Sep-20	Sep-21	%
NPS									
Central Govt	21.3	22.3	4.5	1,11,293	1,35,820	22.0	1,60,606	2,04,227	27.2
State Govt	49.0	53.9	10.1	1,88,000	2,42,330	28.9	2,50,260	3,35,749	34.2
Corporate	10.5	12.7	21.0	37,788	53,707	42.1	50,730	77,041	51.9
UoS	13.6	18.4	35.3	17,282	26,145	51.3	16,224	27,089	67.0
NPS Lite	43.2	42.9	-0.7	2,776	2,931	5.6	4,068	4,624	13.7
APY									
APY	236.9	312.9	32.1	11,585	16,078	38.8	13,042	18,649	43.0
Total	**374.3**	**463**	**23.7**	**3,68,725**	**4,77,011**	**29.4**	**4,94,930**	**6,67,379**	**34.8**

Source: PFRDA
Note- UoS-All Citizen Model, APY- Atal pension Yojana

4.51 As on 12th October 2021, contribution of ₹16,109 crore was collected in the Atal Pension Yojana (APY) scheme from more than 3.45 crore enrolments. The APY scheme is being distributed through more than 250 active APY service providers including all banks and post offices (Table 20).

Table 20: Number of enrolments (category-wise) under the APY Scheme

Category of Banks	Mar-17	Mar-18	Mar-19	Mar-20	Mar-21	12th Oct 2021
Public Sector Banks	3,047,273	6,553,397	10,719,758	1,56,75,442	2,12,52,435	2,43,90,974
Private Banks	497,323	873,901	1,145,289	15,62,997	19,86,467	21,21,377
Small Finance Bank	-	-	9,190	15,760	35,114	56,012
Payment Bank	-	-	48,182	3,44,001	8,18,800	10,93,602
Regional Rural Banks	1,115,257	1,987,176	3,171,152	43,30,190	57,10,770	64,15,150
District Co-op Banks	29,791	33,880	38,863	48,581	54,628	58,775
State Co-op Banks	680	805	1,053	4,620	5,350	5,604

Urban Co-op Banks	3,507	10,936	14,469	17,355	20,095	21,881
DOP	189,998	245,366	270,329	3,02,712	3,32,141	3,44,132
Total	**48,83,829**	**97,05,461**	**1,54,18,285**	**2,23,01,658**	**3,02,15,800**	**3,45,07,507**

Source: PFRDA

4.52 The age profile of the subscribers in the APY scheme suggests increasing enrolments at younger age. As on September 2021, more than 43 per cent subscribers were between 18 and 25 years, as compared to 29 per cent as on March 2016. Further, more people are now opting for a pension amount of ₹1000 per month. As on September 2021, around 78 per cent subscribers have opted for ₹1000 per month pension amount, as compared to 38 per cent subscribers as on March 2016. Further, as on September 2021 the share of subscribers opting for ₹2000/₹3000/₹4000 per month pension is 8 per cent, while 14 per cent opt for ₹5000 per month pension.

4.53 The gender gap in enrolments under APY has narrowed down with increased participation of female subscribers, which has increased from 37 per cent as of March 2016; to 44 per cent as of September 2021. The Table 21 below lists the states which have APY account enrolment of 10 lakhs and more.

Table 21: Number of APY accounts (as on 12th October 2021)

Sr. No.	State Name	Number of APY Accounts (in Lakh)
1	Uttar Pradesh	51.9
2	Bihar	32.7
3	West Bengal	27.6
4	Maharashtra	26.8
5	Tamil Nadu	25.5
6	Andhra Pradesh	20.5
7	Karnataka	20.5
8	Madhya Pradesh	20.2
9	Rajasthan	17.2
10	Gujarat	14.3
11	Orissa	13.1

Source: PFRDA

4.54 The limit of aggregate holding of equity shares by a foreign company in Pension Funds has been revised up from 49 per cent to 74 per cent. The limits for allowing exit from NPS without requirement of annuitisation (complete lump-sum) was revised upward in case of superannuation or death of subscriber from ₹2 lakh to ₹5 lakh, as well as in case of premature exit from NPS from ₹1 lakh to ₹2.5 lakh across the sector for all NPS subscribers. The subscribers, joining after age of 60 years, can remain invested/ subscribed to the National Pension System till the age of 75 years which was earlier 70 years. In order to enable its employees build a sufficient pension corpus, the Central Government has increased the Government co-contribution from 10 per cent

to 14 per cent for its employees. It is extended to Bank employees, State Govt employees and Central Autonomous Bodies (CABs). The Government has also provided the option to Central Government employees to change their pattern of investment along with opting for any other pension fund apart from the present default scheme.

INSOLVENCY AND BANKRUPTCY CODE

4.55 The Insolvency and Bankruptcy Code (IBC) has created a cohesive and comprehensive insolvency ecosystem. With the enactment of IBC, India has witnessed the birth of two professions, namely, the insolvency profession and the valuation profession that have professionalised insolvency services. The Code has opened possibilities of the resolution, including merger, amalgamation and restructuring of any kind, which often requires professional help. This has created markets for services of Insolvency Professionals, Registered Valuers, Insolvency Professional Entities and expanded the scope of services of Advocates, Accountants and other professionals (Table 22).

Table 22: Ecosystem under the Code

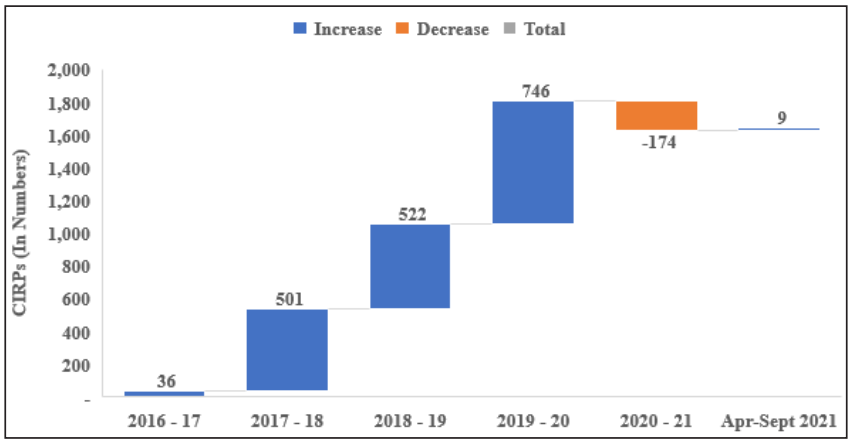
Appellate Authority	Two Benches of National Company Law Appellate Tribunal					
Adjudicating Authority	15 Benches of National Company Law Tribunal					
Regulator	Insolvency and Bankruptcy Board of India					
Service Providers	**As on**					
	Mar2017	**Mar2018**	**Mar2019**	**Mar2020**	**Mar2021**	**Sep2021**
Information Utilities	00	01	01	01	01	01
Insolvency Professional Agencies	03	03	03	03	03	03
Insolvency Professionals	977* + 96	1812	2456	3004	3504	3816
Insolvency Professional Entities	03	75	48	69	83	86
Registered Valuer Organisations	NA	NA	11	12	16	16
Registered Valuers	NA	NA	1186	3030	3967	4366
Registered Valuer Entities	NA	NA	0	20	40	52

Source: IBBI
Note: *These registrations had a validity of six months and expired by 30th June 2017

Outcomes under the Code

4.56 In view of the COVID-19 pandemic, the Insolvency and Bankruptcy (Amendment) Ordinance, 2020 was promulgated on 5th June 2020, which suspended initiation of the CIRP of a corporate debtor (CD) for any default arising on or after 25th March 2020. Further, the suspension of the Code was extended twice for 3 months each on 24th September 2020 and 22nd December 2020, to provide relief to the firms undergoing stress due to the pandemic. The relaxation combined with continued resolutions led the number of cases to decline during 2020-21, which has slightly increased to 1640 as of September 2021 (Figure 20).

Figure 20: Corporate Insolvency Resolution Process (CIRPs) accumulation (as of September 30, 2021)



Source: Compilation from the website of the Nation Company Law Tribunal (NCLT) and filing by IPs.

Note: These CIRPs are in respect of 4,593 Corporate Debtors (CDs), This excludes 1 CD which has moved directly from BIFR to resolution, This Includes Dewan Housing Finance Corporation Limited data, the application filed by RBI was admitted u/s 227 read with Financial Service Providers (FSPs) rules, of the code.

(a) Rescue of distressed assets

4.57 The primary objective of the Code is resolving the Corporate Debtors (CDs) in distress. As on September 2021, the Code has rescued 421 CDs through resolution plans and referred 1419 CDs for liquidation. The CDs rescued had assets valued at ₹1.48 lakh crore, while the CDs referred for liquidation had assets valued at ₹0.52 lakh crore when they were admitted to Corporate Insolvency Resolution Process (CIRP). In value terms, around 74 per cent of distressed assets were rescued. Of the CDs sent for liquidation, three-fourth were either sick or defunct and of the firms rescued, one-third were either sick or defunct. Nearly 65 per cent of the total admitted cases have been closed, either by resolution, withdrawal or liquidation. Out of the 1640 ongoing CIRPs, nearly 75 per cent of the cases has been ongoing for over 270 days (Table 23).

Table 23: Status of CIRPs as of September 30, 2021

Status of CIRPs	No. of CIRPs
Admitted	4708
Closed on Appeal / Review / Settled	701
Closed by Withdrawal under section 12A	527
Closed by Resolution	421
Closed by Liquidation	1419
Ongoing CIRP	1640
> 270 days	1201
> 180 days ≤ 270 days	186
> 90 days ≤ 180 days	120
≤ 90 days	133

Source: IBBI 2021

4.58 The realisable value of the assets available with the 421 CDs rescued when they entered the CIRP, was only ₹1.48 lakh crore, though they owed ₹7.94 lakh crore to creditors. The resolution plans realised ₹2.55 lakh crore, which is more than 172 per cent of the realisable value of these CDs. Though recovery is incidental under the Code, the Financial Creditors (FCs) recovered 32.11 per cent of their claims, which reflects the extent of value erosion by the time the CDs entered CIRP, yet it is the highest among all options available to creditors for recovery (Table 24).

Table 24: Status of distressed assets as of September 30, 2021(Amount in ₹ Crore)

Description	Companies Rescued	Companies Ordered for Liquidation	Total
No. of Companies	421	1419	1840
Aggregate Claims	794168	738631	1532799
Liquidation Value	147886	52036	199922
Assets available % of Aggregate Claims	18.62	7.04	13.04
Resolution Value	254983	NA	254983
Resolution Value as % of Liquidation Value	172.42	NA	NA
Resolution Value as % of Aggregate Claims admitted	32.11	NA	NA
Average time taken	495 days	375 days	435 days
Cost % of Resolution Value	0.54	NA	NA

Source: IBBI 2021

(b) Liquidations

4.59 The 1419 CDs ending up with orders for liquidation had an aggregate claim of ₹7.38 lakh crore. However, they had assets, on the ground, valued only at ₹0.52 lakh crore. Till September 2021, 264 CDs have been completely liquidated which had outstanding claims of ₹45,790 crore, but the assets were valued at ₹2,025 crore. ₹1,983 crore was realised through the liquidation of these companies (Table 25).

Table 25: Status of Liquidation Process as of September 30, 2021

Status of Liquidation	Number
Initiated	**1419***
Final Report submitted#	264
Closed by Dissolution	151
Closed by Going Concern Sale	6
Compromise / Arrangement	7
Ongoing**	**1155**
>Two years	456
> One year ≤ Two years	333

> 270 days ≤ 1 year	80
> 180 days ≤ 270 days	156
> 90 days ≤ 180 days	74
≤ 90 days	56

Source: IBBI 2021
Note: *This excludes 12 cases where liquidation order has been set aside by NCLT / National Company Law Appellate Tribunal (NCLAT) / HC / SC;
This includes cases where an application for early dissolution has been filed with the NCLT;
** This includes 3 cases where CD has been sold as a going concern, however, submission of Final Report is awaited.

(c) Time and cost

4.60 The 421 CIRPs, which have yielded resolution plans by the end of September 2021 took on average 428 days (after excluding the time excluded by the Adjucating Authority) for the conclusion of the process. Out of this, the cost details are available in respect of 388 CIRPs. The cost works out on average to 0.98 per cent of liquidation value and to 0.54 per cent of resolution value.

4.61 The 1419 CIRPs, which ended up in orders for liquidation, took on average 375 days. Further, 264 liquidation processes, which have closed by submission of final reports took on average 427 days for closure.

(d) Behavioural Change

4.62 Distressed assets have a life cycle and their value gradually declines with time. The fact that a CD may change hands has changed the behaviour of debtors. Thousands of debtors are resolving distress in the early stages of distress, either when the default is imminent, on receipt of a notice for repayment but before filing an application, after filing the application but before its admission, and even after admission of the application, and making best effort to avoid consequences of the resolution process. Till September 2021, 18,629 applications for initiation of CIRPs of CDs having underlying default of ₹5,89,516 crores were resolved before their admission. Further, a total of 527 CIRPs have been withdrawn under section 12A of the Code until September 2021. Almost three fourth of these CIRPs had claims of less than ₹10 crores and 701 CIRP cases have been closed on appeal/ review/settled.

IBC and pre-packaged insolvency resolution process for corporate MSMEs

4.63 The provision of multiple competing options for the resolution of stress makes an economy a great place to do business. In line with this thought, the Insolvency and Bankruptcy Code, 2016 was amended through an Ordinance on April 4, 2021, to provide for a Pre-Packaged Insolvency Resolution Process (PPIRP) for corporate Micro, Small and Medium Enterprises as an alternative insolvency resolution process to ensure quicker outcomes.

4.64 PPIRP has the rigour and discipline of the CIRP. It is informal up to a point and formal thereafter. It blends debtor-in-possession with creditor-in-control. It is neither a fully private nor a fully public process - it allows the company, if eligible under section 29A, to submit the base resolution plan which is exposed to challenge for value maximisation. It safeguards the rights of stakeholders as much as in CIRP and has adequate checks and balances to prevent any potential misuse. This process entails a limited role of the courts and insolvency professionals (IPs).

4.65 The informality at the pre-initiation stage offers flexibility for the CD and its creditors to swiftly explore and negotiate the best way to resolve stress in the business, while the post-initiation stage drives value maximisation and bestows the resolution plan with statutory protection. The process is required to be completed within a time frame of 120 days from the commencement date. During the PPIRP, the management of the affairs of the CD shall continue to vest in the Board of Directors / partners of the CD and the resolution professional conducts the process under the guidance and oversight of the creditors.

Box 6: VOLUNTARY LIQUIDATION OF CORPORATES

Liquidation can be involuntary as in the case of insolvency or bankruptcy; or voluntary which could be due to personal reasons, subsidiaries being merged etc. A company may decide to voluntarily close its operation even when it's viable. There has been an overhaul in the process of winding-up due to the insolvency/ bankruptcy with the introduction of the Insolvency and Bankruptcy Code, 2016 (IBC). However, the procedure of voluntary exit of business still needs to be simplified significantly, on top of recent progress.

Currently, there are two main methods of voluntary liquidation, one is through the Registrar of Companies (RoC) under section 248 of the Companies Act, 2013 and other is under the IBC. The former is currently the more popular route by far.

i. Section 248(2) of Companies Act 2013

Under Section 248(2) of the Companies Act, a company may, after extinguishing all its liabilities, by a special resolution or consent of 75 per cent members in terms of paid-up share capital, may file an application in a prescribed manner to the Registrar of Companies (RoC). There must not be any pending litigations against the company. The following is the step-by-step procedure:

Step 1: Company has to convene a board meeting to approve the closure of the bank account, pay off all the pending liabilities, and prepare the latest financial statement of the Company after the closure of the bank account.

Step 2: Company files a STK-2 form with the respective RoC.

Step 3: Director shall furnish a declaration in the e-form stating that the company does not have any dues towards any government department (Centre, State, Statutory or local authorities). This has to be certified by a Charted Accountant, Cost Account or Company Secretary.

Step 4: RoC issues a public notice in a prescribed manner on Ministry of Corporate Affairs (MCA) website; Official Gazette and the largest circulating newspaper, one in English and the other one in vernacular language. A 30 days' notice time is provided for any claims and objections to be raised. If the company applying for winding up is regulated under Special Act (under section 8), approval of the concerned Regulatory body is required, otherwise it is not required[8].

Step 5: After expiry of notice period, RoC may strike off companies name and publish dissolution notice in Official Gazette.

[8]Companies which have been incorporated for carrying on business objects like, NBFC, Asset Management Companies, Insurance etc. have to obtain NOC from their Regulatory authority like RBI, SEBI, IRDA respectively.

This is considered to be a faster winding process; however, it was observed that there were huge pendencies. As of 13th June 2021, out of the 28,536 pending cases, nearly 10 per cent were pending from more than 1000 days and 54 per cent cases (15,310) were pending for more than one year. Thereafter, efforts were made by government to clear the backlog of applications. Consequently, the number of pending cases has come down drastically to 9,768 as on 10th January 2022, out of which only about 16.3 per cent are pending for more than a year. Yet this process can be simplified further.

ii. Insolvency and Bankruptcy Code

Section 59 of Insolvency and Bankruptcy Code (IBC), 2016 together with the IBBI (Voluntary Liquidation Process) Regulations, 2017 (Voluntary Liquidation Regulations) provide the mechanism for voluntary liquidation of a corporate person. Section 59 of IBC states that 'A corporate person who intends to liquidate itself voluntarily and has not committed any default may initiate voluntary liquidation proceedings under this chapter'. As on September 2021, 1042 cases have been filed under this scheme so far and out of them, final reports have been received for 483 cases, and the final order of dissolution has been passed in 257 cases. Out of the ongoing cases, nearly 32 per cent of the cases are pending over 2 years and 19 per cent for between 1 and 2 years (Table 6A).

Table 6A: Status of Voluntary Liquidations as of September 30, 2021

Status	No. of Liquidations
Initiated	1042
Closed by withdrawal	10
Final Report Submitted	483
Closed by Dissolution	257
Ongoing	549
> Two years	177
> One year ≤ Two years	104
> 270 days ≤ 1 year	61
> 180 days ≤ 270 days	107
> 90 days ≤ 180 days	35
≤ 90 days	65

Source: IBBI

The step-by-step procedure of the voluntary liquidation process under IBC is as follows:

Step 1: A board meeting is held approving the voluntary liquidation. Section 59(3)(a) of the Code provides that the majority of the directors of the company shall pass a declaration regarding solvency and the company not being liquidated to defraud any person. This declaration has to be supplemented with 2 things:

(a) Audited financial statements and record of business operations of the company for the previous two years or since its incorporation, whichever is later.

(b) A report of the valuation of assets of the company, if any, prepared by a Registered Valuer.

Step 2: Passing of shareholder's resolution and appointing a liquidator. There shall be a resolution (or special resolution) of the members of the company in a general meeting requiring the company to be liquidated voluntarily and appointing an insolvency professional to act as the liquidator. The creditors representing two-thirds in value of the debt of the company shall approve the said resolution within seven days of such resolution.

Step 3: Liquidator files the resolution to Insolvency and Bankruptcy Board of India (IBBI) and RoC within seven days as per section 59(4) of the Code and regulation 3 (2) of Voluntary Liquidation Regulations. Regulation 14 of Voluntary Liquidation Regulations requires making public announcement (in English and Regional Newspapers) within 5 days calling stakeholders to submit claims within 30 days (Section 38 (1) of the Code).

Step 4: Opening a designated bank account for cash and liquid funds and closure of existing bank account(s) and transfer of funds to a designated bank account.

Step 5: Apply for No Objection Certificate (NOC) in Central Board of Direct Taxes, Central Board of Indirect Taxes and Custom, Employee Provident Fund Organisation and sectoral regulators (These NOCs are not explicitly mentioned in IBC but are implied to be taken).

Step 6: Liquidator gives final remittance to shareholders. Also, the liquidator deposits applicable withholding taxes and then closes the bank account opened for liquidation.

Step 7: Liquidator then submits a final report to shareholders, RoC, IBBI and National Company Law Tribunal (NCLT).

Step 8: Order is passed by NCLT.

Step 9: File copy of the order for dissolution of corporate debtor with RoC vide Form INC 28 and RoC to strike-off the name of Corporate Debtor from RoC.

The first key issue in the process is delays in obtaining No Objection Certificates (NOCs) from departments including Central Board of Direct Taxes, Central Board of Indirect Taxes and Custom, Employee Provident Fund Organisation and other sectoral regulators. The NOCs are implied to be taken although not specifically mentioned in the Code. This leads to confusion regarding the procedure to be followed among the departments, liquidators etc. with regard to the exact procedure to be followed. Another issue in the process is that there are no well-defined Standard Operating Procedures (SoPs) in the departments for granting NOC. As per the current practice, the liquidators write a letter to the head of the departments asking for any claims that the department has on the company and to grant NOC. The department then assesses the application and responds. Since there are no SoPs, the claims raised by the departments come with a lag and are not within the stipulated period. Further, another problem leading to delays in certain cases is that there are no standard guidelines on requirements by NCLT bench, creating lags in the processes as the company has to contact various departments to take the specified clearances as required by NCLT. Another issue is the hesitancy in the banks for closure of existing bank accounts and also for the opening of the new liquidation bank account by the liquidator, which is a mandatory step in the liquidation proceedings.

To sum up, there is a case for simplifying the problems in the Voluntary Liquidation process, to improve ease of exit for business. Apart from simplifying the issues in the various steps in the processes, there is a need for the creation of a single window for the entire process. A portal that combines all the steps of the liquidation process altogether, starting from application by companies to processing by all departments will prove to be very useful.

Cross Border Insolvency

4.66 Cross border insolvency signifies circumstances in which an insolvent debtor has assets and/or creditors in more than one country. Typically, domestic laws prescribe procedures, for identifying and locating the debtors' assets; calling in the assets and converting them into a monetary form; making distributions to creditors in accordance with the appropriate priority etc. for domestic creditors/debtors. However, there are various insolvency cases in which corporations owes assets and liabilities in more than one country.

4.67 At present, Insolvency and Bankruptcy Code, 2016 (IBC) provides for the domestic laws for the handling of an insolvent enterprise. IBC at present has no standard instrument to restructure the firms involving cross border jurisdictions. The problem of not having a cross border framework problem was also expressed by the National Company Law Tribunal (NCLT) in Mumbai in a cross-border insolvency case involving an Indian entity[9]. NCLT stated that while insolvency proceedings against the corporate debtor have already been initiated before a District Court in Netherlands, "*there is no provision and mechanism in the IBC, at this moment, to recognize the judgment of an insolvency court of any Foreign Nation. Thus, even if the judgment of Foreign Court is verified and found to be true, still, sans the relevant provision in the IBC, we cannot take this order on record.*" The absence of standardized cross border insolvency framework creates complexities and raises various issues such as:

- The extent to which an insolvency administrator may obtain access to assets held in a foreign country.
- Priority of payments- Whether local creditors may have access to local assets before funds go to the foreign administration or not.
- Recognition of the claims of local creditors in a foreign administration.
- Recognition and enforcement of local securities, taxation system over local assets where a foreign administrator is appointed etc.

4.68 Presently, while foreign creditors can make claims against a domestic company, the IBC currently does not allow for automatic recognition of any insolvency proceedings in other countries. Cross border insolvency is regulated by Section 234 and 235 of IBC. Section 234 empowers the Central Government to enter into bilateral agreements with other countries to resolve situations about cross-border insolvency. Further, the Adjudicating Authority can issue a letter of request to a court or an authority (under Section 235) competent to deal with a request for evidence or action in connection with insolvency proceedings under the Code in countries with the agreement (under Section 234).

4.69 As can be seen, the current provisions under IBC are ad-hoc in nature and are susceptible to delay. Entering into mutual (reciprocal) agreements require individual long-drawn-out negotiations with each country. This leads to uncertainty of outcomes of claims for creditors, debtors and other stakeholders as well.

[9]State Bank of India v. Jet Airways (India) Ltd., CP 2205 (IB)/MB/2019, CP 1968(IB)/MB/2019, CP 1938(IB)/MB/2019, Order dated 20 June 2019

4.70 Therefore, there is a need for a standardized framework for Cross-Border insolvency. This issue is not new and in fact, the proposal to frame a robust cross border insolvency framework has already been highlighted in the report of the Insolvency Law Committee (ILC)[10] (October 2018). The Committee had recommended the adoption of the United Nations Commission on International Trade Law (UNCITRAL) with certain modifications to make it suitable to the Indian context. In fact, UNCITRAL on Cross-Border Insolvency, 1997 has emerged as the most widely accepted legal framework to deal with cross-border insolvency issues. It provides a legislative framework that can be adopted by countries with modifications to suit the domestic context of the enacting jurisdiction. It has been adopted by 49 countries until now, such as Singapore, UK, US, South Africa, Korea, etc. This law addresses the core issues of cross border insolvency cases with the help of four main principles:

- *Access*: It allows foreign professionals and creditors direct access to domestic courts and enables them to participate in and commence domestic insolvency proceedings against a debtor.
- *Recognition*: It allows recognition of foreign proceedings and enables courts to determine relief accordingly.
- *Cooperation*: It provides a framework for cooperation between insolvency professionals and courts of countries.
- *Coordination*: It allows for coordination in the conduct of concurrent proceedings in different jurisdictions.

[10]Government had invited suggestions/comments on the ILC report (Draft Z) from stakeholders.

05

CHAPTER

Prices and Inflation

As economic activity started showing signs of picking-up in the second year of the pandemic, the global economy faced the fresh challenge of rising global inflation. COVID-19 related stimulus spending in major economies along with pent-up demand boosting consumer spending pushed inflation up in many advanced and emerging economies. The surge in energy, food, non-food commodities, and input prices, supply constraints, disruption of global supply chains, and rising freight costs across the globe stoked global inflation during the year. Crude oil prices also witnessed an upswing during the year on the back of increased demand from recovering economies and supply restrictions by the Organization of the Petroleum Exporting Countries and its allies (OPEC+).

On the domestic front, the average headline Consumer Price Index-Combined (CPI-C) inflation in India moderated to 5.2 per cent in 2021-22 (April-December) from 6.6 per cent in the corresponding period of 2020-21 and was recorded at 5.6 per cent in December 2021. The Consumer Price Index inflation remained range bound as food prices eased considerably due to the supply management response by the Government. Food inflation remained benign during the year at 2.9 per cent (April-December) as against 9.1 per cent in the corresponding period last year. In the case of vegetables, prices of onions and potatoes remained under control, though retail prices of tomatoes witnessed an uptick during September to November 2021 due to untimely rains in major producing states. However, with fresh arrivals in the market in December, retail prices of tomatoes too, are showing signs of easing. While seasonality plays a significant role in the case of vegetables, random shocks like untimely rains also have an impact on their availability and prices. A strong network of cold storage chains well supported by effective transport infrastructure is needed to stabilize the prices of such perishable commodities. Effective supply-side management kept prices of most essential commodities under control during the year. Proactive measures were taken to contain the price rise in pulses and edible oils that reported high inflation reflecting the impact of imported inflation in these commodities. Reduction in central excise and subsequent cuts in VAT by most States has also helped ease petrol and diesel prices.

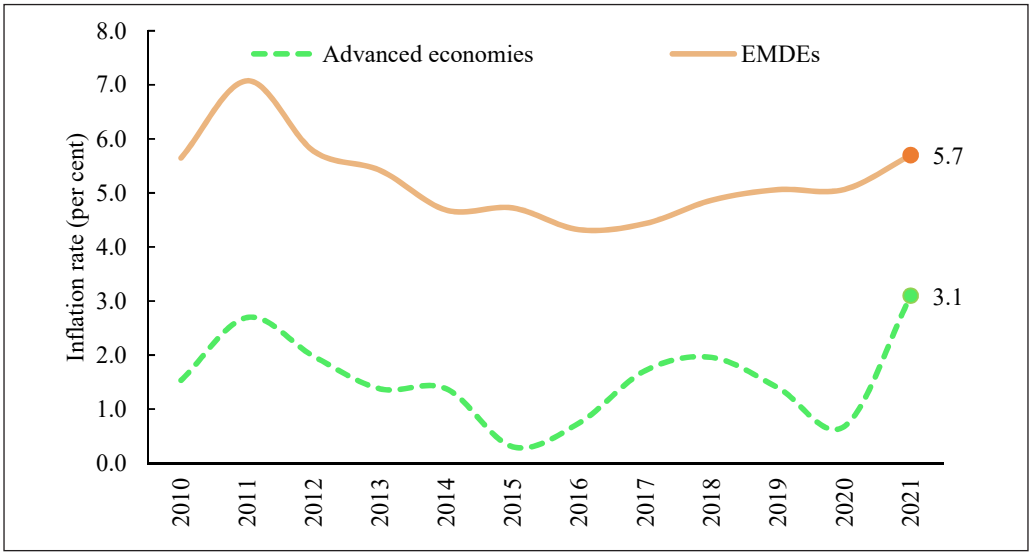
Wholesale inflation based on Wholesale Price Index (WPI), after remaining very benign during the previous financial year on account of pandemic induced weakening of economic activity, record low global crude oil prices and weak demand, witnessed a sharp uptick, rising to 12.5 per cent during 2021-22 (April-December). This was attributable to the pick-up in economic activity, sharp increase in international prices of crude oil and other imported inputs, and high freight costs. The consequent divergence between

CPI-C and WPI inflation during the year remained a subject of debate. This divergence can be explained by factors such as variations due to base effect, difference in scope and coverage of the two indices, their price collections, items covered and difference in commodity weights. Further, WPI is more sensitive to cost-push inflation led by imported inputs. With the gradual waning of base effect in WPI, the divergence in CPI-C inflation and WPI inflation is also expected to narrow down.

GLOBAL INFLATION

5.1 In 2021, inflation picked up globally as economic activity revived with opening-up of economies. COVID-19 related stimulus spending, mainly in the form of discretionary handouts to households in major economies, along with pent up demand fueling consumer spending, pushed inflation up in both advanced and emerging economies. In the advanced economies, inflation has increased from 0.7 per cent in 2020 to around 3.1 per cent in 2021 (Figure 1) (IMF, 2022). The surge in energy, food, non-food commodities, and input prices, supply constraints, disruption of global supply chains, and rising freight costs across the globe stoked global inflation during the year. Crude oil prices also witnessed an upswing during the year on the back of increased demand from recovering economies and supply cuts by the Organization of the Petroleum Exporting Countries and its allies (OPEC+).

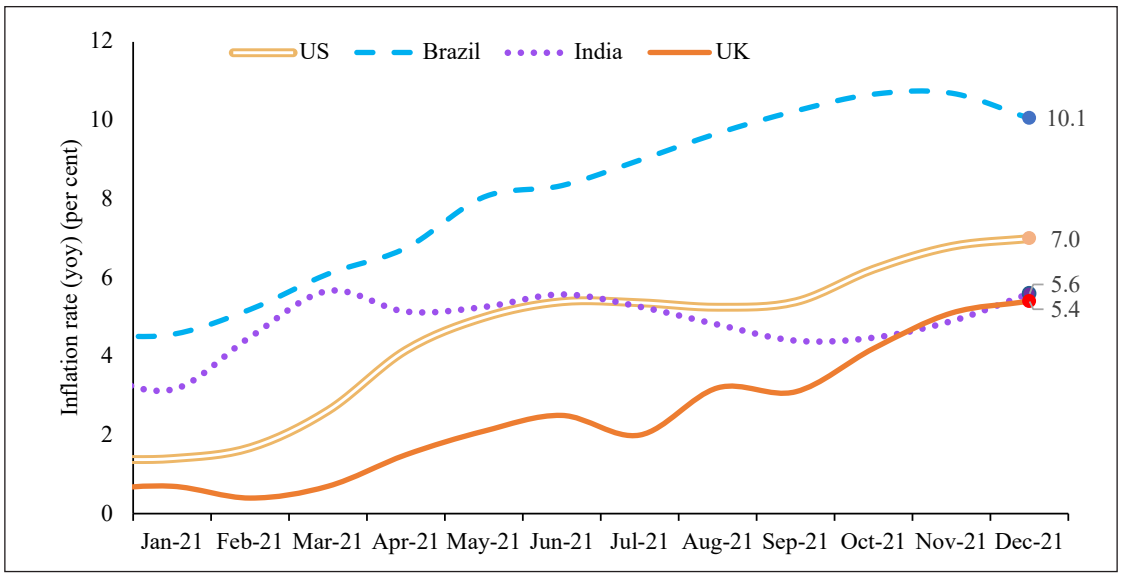
Figure 1: Consumer Price Inflation Rates



Source: World Economic Outlook, January 2022 Update, IMF
Note: The figure are annual averages.
Advanced Economies include 40 economies and Emerging Markets and Developing Economies (EMDEs) include 156 economies as per IMF classification

5.2 However, in comparison to many Emerging Markets and Developing Economies (EMDEs) and advanced economies, consumer price inflation in India remained range bound in the recent months, touching 4.9 per cent in November 2021 and 5.6 per cent in December 2021, owing to the proactive steps taken by the Government for effective supply management. As against this, inflation in USA touched 7.0 per cent in December 2021, the highest since 1982, driven largely by second hand vehicles and energy. While in the UK it hit a nearly 30 years high of 5.4 per cent in December 2021 mainly on account of rising food prices. Among emerging markets, Brazil witnessed high and rising inflation during 2021 which touched 10.1 per cent in December 2021(Figure 2). Inflation in Turkey has been in double digits, reaching 36.1 per cent in December 2021. Argentina has witnessed inflation rates above 50 per cent during the last six months.

Figure 2: Consumer Price Inflation in select countries



Source: Organisation for Economic Co-operation and Development; Office for National Statistics, UK

DOMESTIC INFLATION

5.3 Retail inflation, as measured by Consumer Price Index-Combined (CPI-C) inflation, in India, which was slightly above 6 per cent in 2020-21 owing to supply chain disruptions caused by COVID-19 restrictions, lockdowns, and night curfews, moderated during the current financial year. Retail inflation during 2021-22 (April-December) stood at 5.2 per cent (Table 1). Wholesale inflation, based on Wholesale Price Index (WPI), after remaining benign during the previous financial years, saw a sharp uptick during 2021-22 (April-December). A part of the observed rise in wholesale inflation could be attributed to the low base in the previous year. However, rising input costs and global commodity prices also contributed to the rise in wholesale prices.

Table 1. General inflation based on different price indices (in per cent)

Indices	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2020-21^	2021-22*
WPI	-3.7	1.7	3.0	4.3	1.7	1.3	0.0	12.5
CPI - C (Headline Inflation)	4.9	4.5	3.6	3.4	4.8	6.2	6.6	5.2
CPI – IW#	5.6	4.2	2.9	5.6	7.3	5.2	5.2	5.0
CPI - AL	4.4	4.2	2.2	2.1	8.0	5.5	7.0	3.2
CPI - RL	4.6	4.2	2.3	2.2	7.7	5.5	6.8	3.5

Source: Office of the Economic Adviser, Department for Promotion of Industry, and Internal Trade (DPIIT) for WPI, National Statistical Office (NSO) for CPI-C and Labour Bureau for CPI-IW, CPI-AL and CPI-RL.
Notes: #CPI-IW inflation for 2020-21 onwards is based on new series 2016=100; (P) - Provisional; C stands for Combined, IW stands for Industrial Workers, AL stands for Agricultural Labourers and RL stands for Rural Labourers. *2021-22 (April to December) and CPI-IW, CPI-AL, RL (April to November)
^2020-21 (April to December) and CPI-IW, CPI-AL, RL (April to November)

CURRENT TRENDS IN INFLATION AND ITS DRIVERS

Recent Trends in Retail Inflation

5.4 The average retail inflation which was 4.8 per cent in 2019-20, inched up to 6.2 per cent in 2020-21, on account of COVID-19 related supply chain disruptions and stalled economic activity due to lockdown. Since July 2021, retail inflation is well within the tolerance band of targeted limit of 4 per cent +/- 2 percentage points set by the Government for the period April 1, 2021- March 31, 2026 (Table 2). Average retail inflation in 2021-22 (April-December) has declined to 5.2 per cent as against 6.6 per cent during April-December 2020-21.

5.5 In 2021-22, the decline in retail inflation was led by easing of food inflation. Food inflation, as measured by the Consumer Food Price Index (CFPI), averaged at a low of 2.9 per cent in 2021-22 (April to December), as against 9.1 per cent in the corresponding period last year. Food inflation declined between July and September 2021. Though edging up, it increased to 4.0 per cent in December 2021.

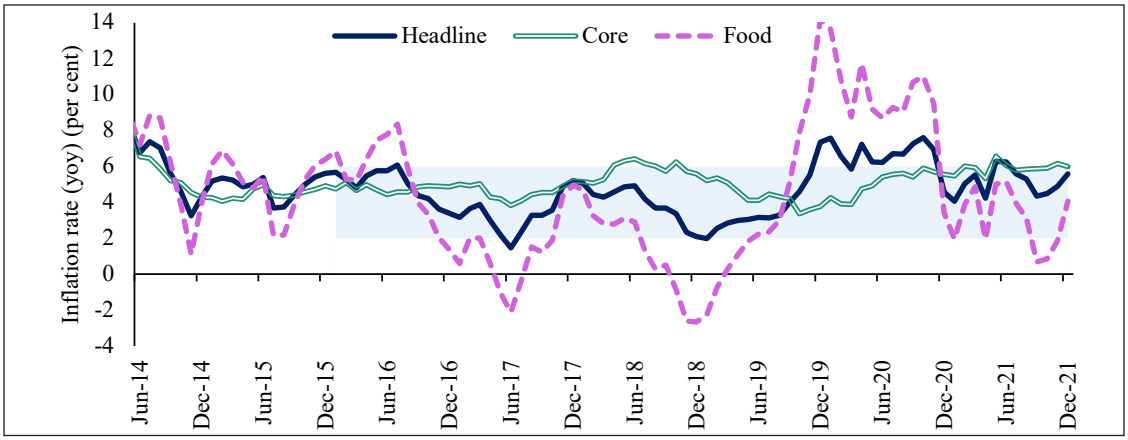
5.6 During the current financial year, retail core inflation (inflation excluding 'food and beverages' and 'fuel and light' – the transitory components of the index) has shown a rising trend. Average core inflation for the period April-December 2021 stood at 5.9 per cent as against 5.4 per cent in corresponding period last year, and remained below 6 per cent during most months. (Figure 3).

Table 2: Inflation in selected groups of CPI-Base 2012 (in per cent)

Description	Weights	2019-20	2020-21	2020-21^	2021-22#	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21(P)
All Groups	100	4.8	6.2	6.6	5.2	4.2	6.3	6.3	5.6	5.3	4.3	4.5	4.9	5.6
CFPI*	39.1	6.7	7.7	9.1	2.9	2.0	5.0	5.1	4.0	3.1	0.7	0.8	1.9	4.0
Food & beverages	45.9	6.0	7.3	8.4	3.5	2.6	5.2	5.6	4.5	3.7	1.6	1.8	2.6	4.5
Cereals & products	9.7	2.8	3.8	5.2	-0.6	-3.0	-1.4	-1.9	-1.7	-1.4	-0.6	0.4	1.5	2.6
Meat & fish	3.6	9.3	15.4	16.3	8.0	16.7	9.1	4.8	8.3	9.2	8.0	7.1	5.5	4.6
Egg	0.4	4.5	12.9	13.3	9.3	10.6	15.2	19.4	20.8	16.3	7.1	-1.4	-1.3	1.5
Milk & products	6.6	2.9	5.4	6.4	2.4	-0.1	0.6	1.9	2.7	2.9	3.1	3.2	3.4	3.8
Oils & fats	3.6	2.9	16.0	14.0	30.9	25.9	30.9	34.8	32.5	33.1	34.2	33.6	29.7	24.3
Fruits	2.9	0.7	2.6	1.4	7.4	9.7	11.8	11.8	9.0	6.7	3.6	4.9	6.0	3.5
Vegetables	6.0	21.3	5.8	11.0	-11.3	-14.5	-1.9	-0.7	-7.8	-11.7	-22.4	-19.4	-13.6	-3.0
Pulses & products	2.4	9.9	16.4	17.6	7.1	7.5	9.4	10.0	9.0	8.8	8.7	5.4	3.2	2.4
Sugar & confectionery	1.4	0.8	2.5	3.5	1.3	-6.0	-1.5	0.8	-0.5	-0.6	3.0	5.4	6.2	5.6
Fuel & Light	6.8	1.3	2.7	2.3	12.2	8.0	11.9	12.6	12.4	12.9	13.6	14.3	13.3	11.0
CPI excl. food and fuel group (Core)	47.3	4.0	5.5	5.4	5.9	5.3	6.6	6.1	5.8	5.8	5.9	5.9	6.2	6.0

Source: NSO P: Provisional * Consumer Food Price Index
^April to December 2020 # April to December 2021

Figure 3: Trends in CPI-C Headline, Core and Food inflation



Source: NSO, MoSPI

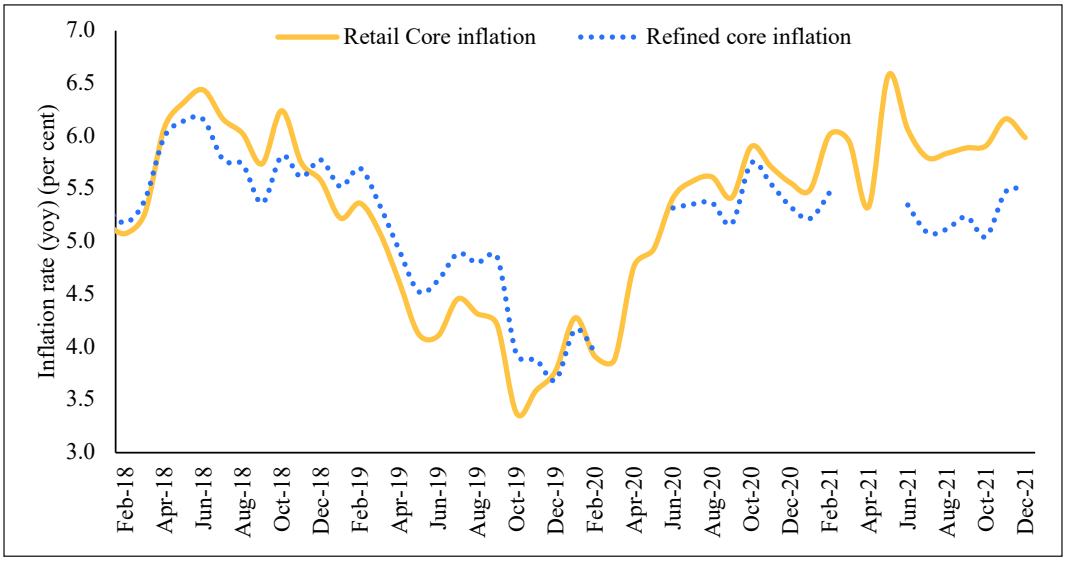
5.7 Conventionally, core inflation is calculated by excluding 'food and beverages' and 'fuel and light'[1] groups from overall inflation. While in CPI-C, major fuel items such as 'petrol for

1. 'Fuel and light' consist mainly of items used by households to meet their domestic fuel needs excluding that for conveyance such as electricity, LPG, Kerosene and other fuels used for cooking. On the other hand, petrol and diesel used for vehicles is included in the 'transport and communication' sub-group of the miscellaneous group.

vehicle' and 'diesel for vehicle', which have relatively large weights, are not included in 'fuel and light'. These fuel items are included in 'transport and communication', a subgroup under the miscellaneous group. Therefore, conventional way of calculating retail core inflation, instead of excluding the volatile fuel items from core inflation, continue to include volatile fuel items in core inflation. As a result, the fuel price rise continues to impact core inflation.

5.8 A 'refined' core inflation was constructed to address this anomaly by excluding main fuel items viz., 'petrol for vehicle', 'diesel for vehicle' and 'lubricants and other fuels for vehicles', in addition to 'food and beverages' and 'fuel and light' from the headline retail inflation. Both the conventional core inflation and refined core inflation are presented in figure 4. Since June 2020, refined core inflation has been much below the conventional core inflation, indicating the impact of inflation in fuel items in the conventional core inflation measure.

Figure 4: Retail Core and 'Refined Core' inflation

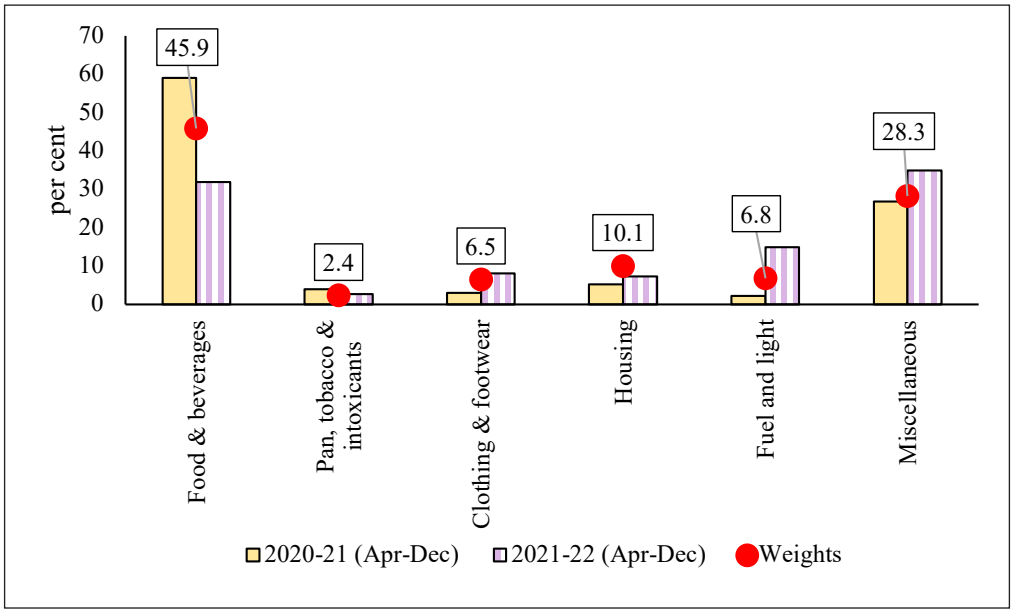


Source: NSO, MoSPI
Note: Item level indices for 'petrol for vehicle', 'diesel for vehicle' and 'lubricants and other fuels for vehicles' were not available for March-May 2020.

What has driven retail inflation and why?

5.9 Unlike 2020-21 (April-December) when 'food and beverage' drove inflation, during 2021-22 (April to December) the major drivers of retail inflation have been miscellaneous and 'fuel and light' group. Contribution of miscellaneous group has increased from 26.8 per cent in 2020-21 (April-December) to 35 per cent in 2021-22 (April-December) and contribution of 'fuel and light' increased from 2.3 per cent to 14.9 per cent (Figure 5). On the other hand, during the same period, contribution of 'food and beverages' declined from 59 per cent to 31.9 per cent. Within 'miscellaneous group', sub-group 'transport and communication' contributed the most, followed by health.

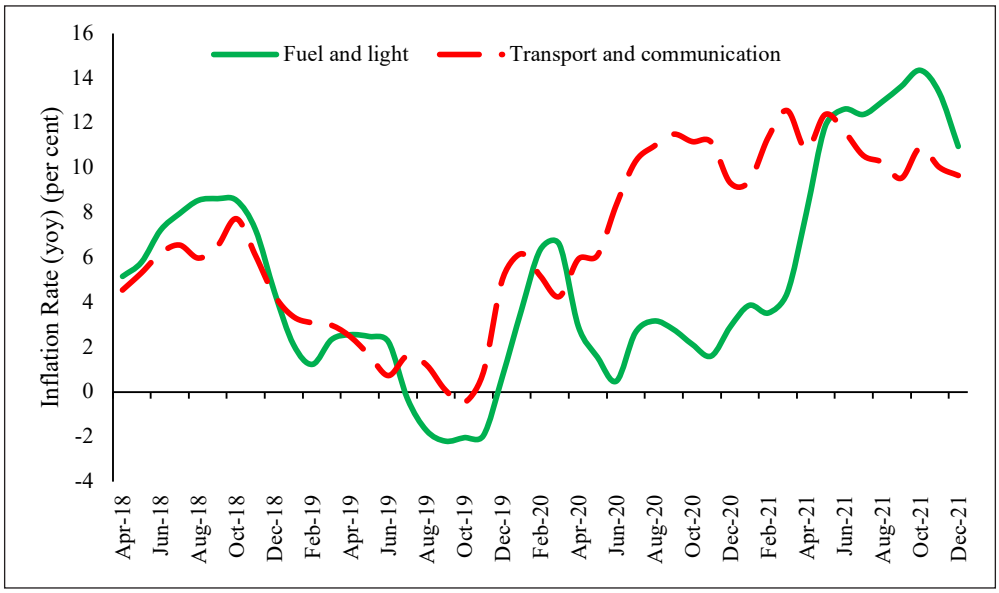
Figure 5: Contribution of groups to overall CPI-C inflation in 2020-21 (April-December) and 2021-22 (April-December) in per cent



Source: NSO, MoSPI

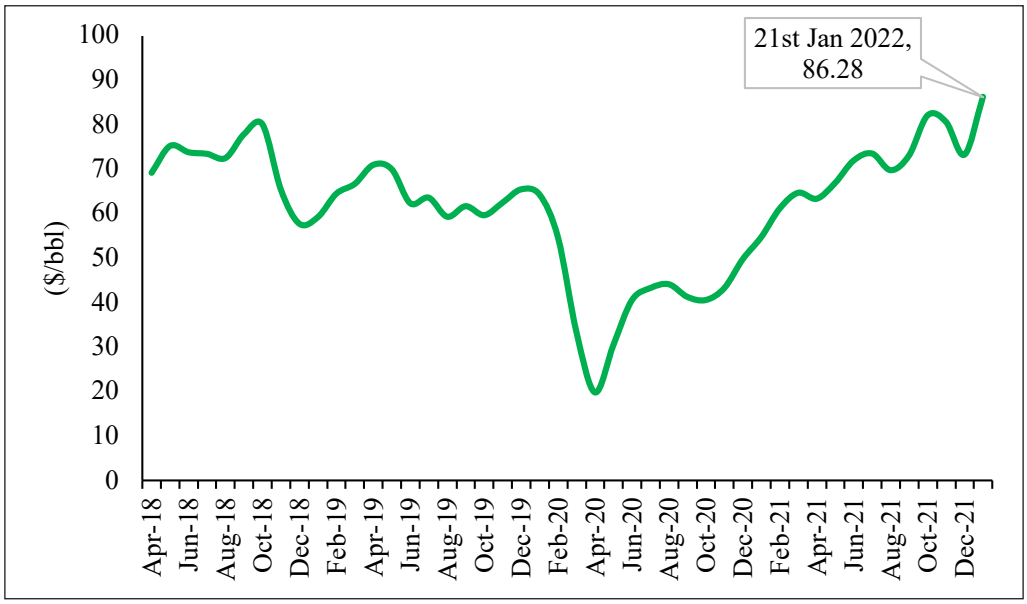
5.10 **'Fuel and light' and 'Transport and communication':** In 2021-22 (April-December), inflation in 'fuel and light' and 'transport and communication' was mostly driven by high international crude oil, petroleum product prices, and higher taxes (Figure 6). In April 2020, in response to subdued global demand because of COVID-19 induced restrictions, the price of Indian basket of crude oil dipped to $19.9/bbl. However, thereafter, the prices have been on an uptrend (Figure 7). The upward trend was on account of unprecedented cuts in crude oil supply by OPEC and other oil producing countries. The upward trend continued in 2021 as well, as demand picked up with easing of COVID-19 restriction in most regions of the world. Besides, the unwinding of production cuts made last year by OPEC+ countries has been gradual and has not kept pace with the recovery in demand. However, since second half of October 2021 crude oil prices had softened, due to factors including rising COVID-19 cases in Europe, and possibility of release of crude oil from strategic reserves by the USA and other countries. Further, cut in central excise duty on petrol and diesel followed by reduction in VAT by majority of the State Governments, led to moderation of retail selling price of petrol and diesel in India in 2021 (Figure 8). However, crude oil price again witnessed an uptick in January 2022 with tight supply amid concerns about rising geopolitical uncertainties in Eastern Europe and the Middle East.

Figure 6: 'Fuel and light' and 'transport and communication' inflation



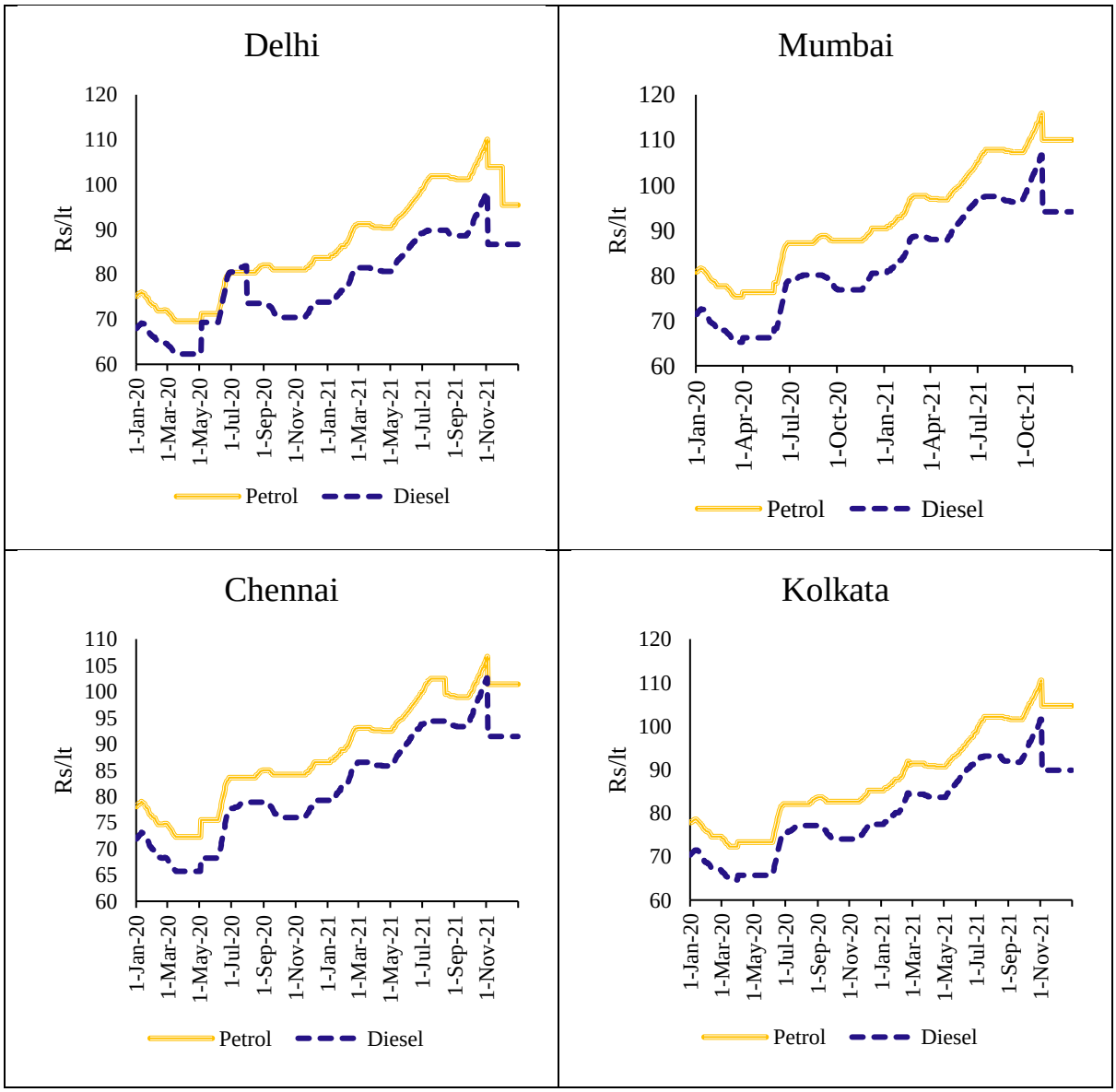
Source: NSO, MoSPI

Figure 7: International Crude Oil Price (Indian Basket)



Source: PPAC, MoPNG

Figure 8: Retail Selling Price (RSP) of Petrol and Diesel in four Metros



Source: PPAC, MoPNG

5.11 **Miscellaneous:** During 2021-22 (April-December), the 'miscellaneous' group by accounting for around 35 per cent of overall inflation has been important driver of retail inflation. Within this group, high inflation in subgroup 'transport and communication' driven mainly by inflation in petrol and diesel for vehicle, have been contributing significantly. 'Clothing and footwear' inflation also saw a rising trend during the current financial year possibly indicating higher production and input costs (including imported inputs) as well as due to revival of consumer demand.

5.12 **'Food and beverages':** Retail food inflation remained above 8 per cent from November 2019 to November 2020, but declined thereafter, recording inflation of 2.9 per cent in 2021-22 (April-December). Inflation in cereals and products remained negative during April to September 2021 and remained low in October-December 2021, indicating sufficient supply of cereals, well supported by an effective Public Distribution System providing subsidized food

grains to the bottom 67 per cent of the population as per 2011 census under the National Food Security Act, 2013.

5.13 During 2021-22 (April to December), inflation in 'vegetables' remained negative at (-)11.3 per cent; contributing negatively to the overall retail inflation. Though, tomato prices spiked after end of September 2021 owing to crop damage and delay in arrival of produce in mandi because of unseasonal heavy rains in producing states of Punjab, Uttar Pradesh, Haryana, and Himachal Pradesh. Pressure on tomato prices was further exacerbated due to disruption of tomato supply by heavy rains in in producing states of Tamil Nadu, Andhra Pradesh, Telangana and Karnataka. In December 2021, tomato prices have moderated with arrival of fresh supplies. Inflation of onion and potato remained negative throughout the year. Both seasonality and exogenous shocks impact retail prices of tomato and onion (Box 1).

5.14 Inflation in protein-based items like 'meat and fish' remained considerably elevated during 2021-22 (April to December), due to COVID-19 related supply disruptions and high poultry feed prices owing to high prices of soybean meal. While the average inflation of 'meat and fish' has been lower during 2021-22 (April to December) at 8.0 per cent compared to 15.4 per cent in 2020-21. Inflation in 'meat and fish' declined since September 2021, and was 4.6 per cent in December 2021, the lowest during the current financial year. Inflation in egg has shown steady decline since July 2021, and remained negative in October 2021 and November 2021. Inflation in 'pulses and products' remained high in the previous financial year, however, declined steadily since July 2021 due to proactive supply management efforts by the Government.

Box 1: Seasonality and irregularity in the retail prices of tomato and onion

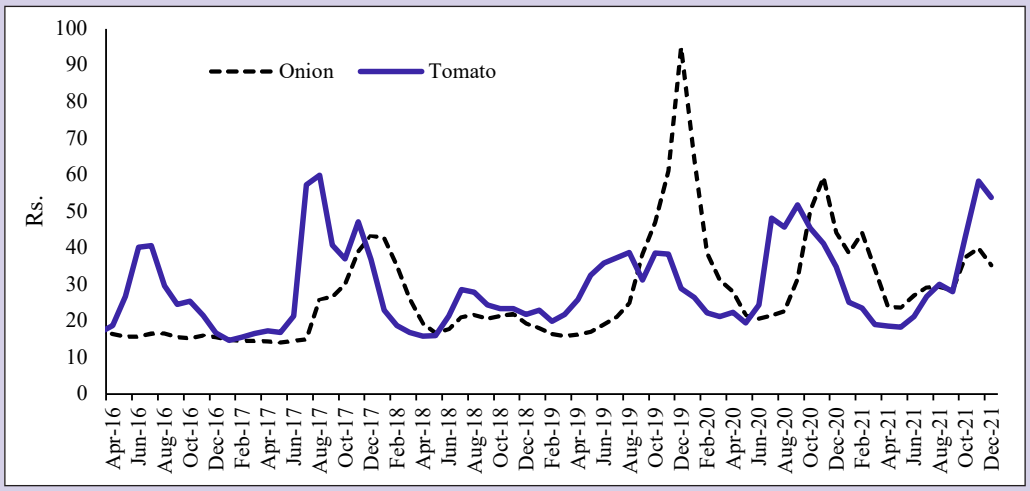
Seasonality in production and irregular shocks are two important components contributing to the variations in prices of agriculture commodities, more so in prices of perishable commodities such as tomato and onion. Seasonality in prices is a result of the varying pattern of production of these commodities during different months of a year. On the other hand, shocks often originate from uncertain weather conditions and other unpredictable events. Distinguishing between these two, however, is important as policy can be oriented at least towards addressing the more certain seasonal pattern of price rise.

A time series often has four components: Trend, Cycle, Seasonal and Irregular. Trend indicates a long-term rise or fall in prices. A cycle represents a rise or fall in prices that are not of a fixed frequency such as representing business cycles. Seasonality is of fixed frequency and occurs at particular points of time during the year. Seasonality in prices could occur due to the seasonal pattern of production of agricultural commodities or seasonality in demand such as major festivals. Irregular component is the remainder in a time series after removing the trend, cycle and seasonal components. Its magnitude, impact and duration are unpredictable a priori.

For the current analysis, the seasonal component of the prices is extracted to identify the seasonality in these commodities in different months of the year. On the other hand, the irregular component can be used to identify points of time when various exogenous shocks have caused spikes in the prices of commodities. The Seasonal-Trend Decomposition Procedure based on Loess (STL) (Cleveland et

al., 1990) was used for the decomposition. The monthly retail price data at the All-India level have been taken from Department of Consumer Affairs. The figure 1A shows the trend of the retail prices of tomato and onion.

Figure 1A: Retail prices of tomato and onion



Source: Department of Consumer Affairs

1. Tomato:

Seasonality in tomato:

The seasonal components tend to put an upward pressure on prices of tomato during July to November every year; upward pressure remain highest in July (Figure 1B). On the other hand, seasonal factor puts largest downward pressure on prices in March. This seasonality in prices results from the seasonal pattern of production of tomato, as about 70 per cent of production of tomato takes place during Rabi season: transplantation during October-February and harvest during December-June. Kharif production during July-November usually contributes less than 30 per cent of total production of tomato in a year. This variation in supply puts upward pressure on tomato prices every year during July-November. If there were no irregular shocks, then seasonality would have caused tomato prices to be around Rs. 15 higher in July 2021 over March 2021 compared to the long-term trend.

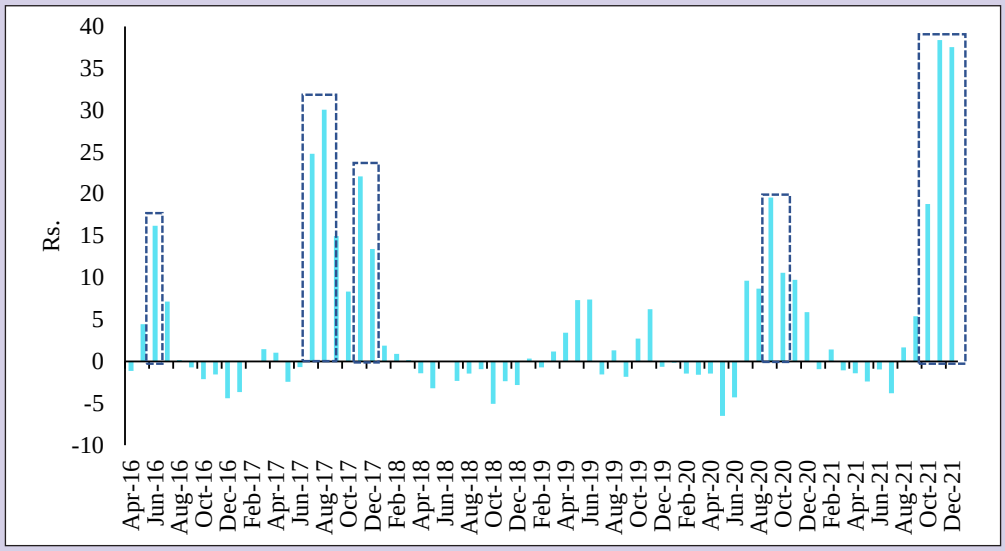
Figure 1B: Seasonality in the retail prices of tomato

Source: Survey calculations

Price shocks in tomato:

Figure 1C presents the irregular component in the retail price series of tomato during the last 5 years. The large jumps in the chart can be used to identify incidents of price shocks. Six instances have been identified when the irregular component has displayed a large spike (close to or greater than Rs. 10) in the case of the retail price of tomato. Possible reasons for the spikes are given in the Table 1A.

Figure 1C: Irregular component in the retail prices of tomato



Source: Survey calculations

Table 1A: Incidents of price shocks in tomato during the last five years

Incidents identified	Reasons
June 2016	Short supply of tomato, as the Rabi crop of 2016 got damaged by severe drought conditions in the southern states.
July-August 2017	Rains in Madhya Pradesh and Rajasthan caused some damage to the crop. In addition, issues with transportation with trucks taking more than the normal time due to the rains leading to reduction in arrivals. Stocks stored got spoiled due to the rain.
November-December 2017	Unseasonal rains in growing regions such as Karnataka and Madhya Pradesh.
May 2019	Delayed harvesting in Maharashtra as well as fungus damaged crops in Karnataka triggered the initial uptick in prices, which was exacerbated by supply disruptions due to incessant rains and flood like situations in key supplier states – Karnataka, Maharashtra and Himachal Pradesh.
September 2020	Lower arrival of the new crop from key growing states due to heavy rains.
November 2021	Unseasonal rains in Punjab, Uttar Pradesh, Haryana and Himachal Pradesh which led to crop damage and delay in arrival from these states. Delayed arrivals from the northern states were followed by heavy rains in Tamil Nadu, Andhra Pradesh, Telangana and Karnataka which further disrupted the supply.

2. Onion:

Seasonality in onion:

Rabi season: transplantation in December-January and harvest in end March to May - accounts for about 70 per cent of total onion production in a year. The seasonal component is found to put downward pressure (negative values in Figure 1D) on prices coinciding with the Rabi harvest period, and upward pressure (positive values) in other months, reaching peak in December. The other two production seasons viz., Kharif - transplantation in July-August and harvesting in October-December -, and late Kharif - transplantation in October-November and harvest in January-March, face supply deficit.

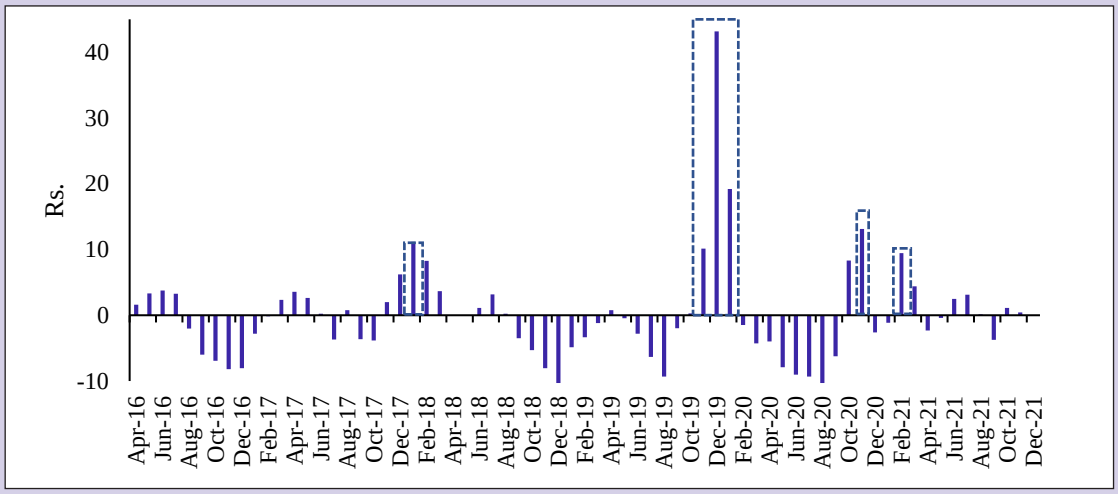
Figure 1D: Seasonality in the retail prices of onion

Source: Survey calculations

Price shocks in onion:

Four incidents of price shocks have been identified based on the inspection of the plot of irregular component in the retail price of onion (Figure 1E). Possible reasons of the incidents are listed in Table 1B.

Figure 1E: Irregular component in the retail prices of onion



Source: Survey calculations

Table 1B: Incidents of price shocks in onion during the last five years

Incidents identified	Reason
January 2018	Fall in production in 2017-18 as against the previous year. Weather conditions in Maharashtra including cyclones and low pressures forming along the west coast, production of onion was adversely affected in areas like Sholapur, Nasik, Ahmednagar and Lasalgaon.
November 2019-January 2020	Untimely and prolonged rains during month of September and October 2019 caused damage to Kharif onion crop leading to short supply and increase in its prices.
October-November 2020	Heavy rainfall in September in Karnataka - responsible for a bulk supply ahead of the kharif crop from Maharashtra towards the end of October - has upset the calculations. September rains, according to reports, have hit not only the supply from Karnataka, but Maharashtra too where heavy rainfall in onion belt comprising Ahmednagar, Nashik and Pune affected the storage with water seepage.
February 2021	Delay in arrivals of the late kharif crop as the growing regions experienced rains in January 2021.

Conclusion

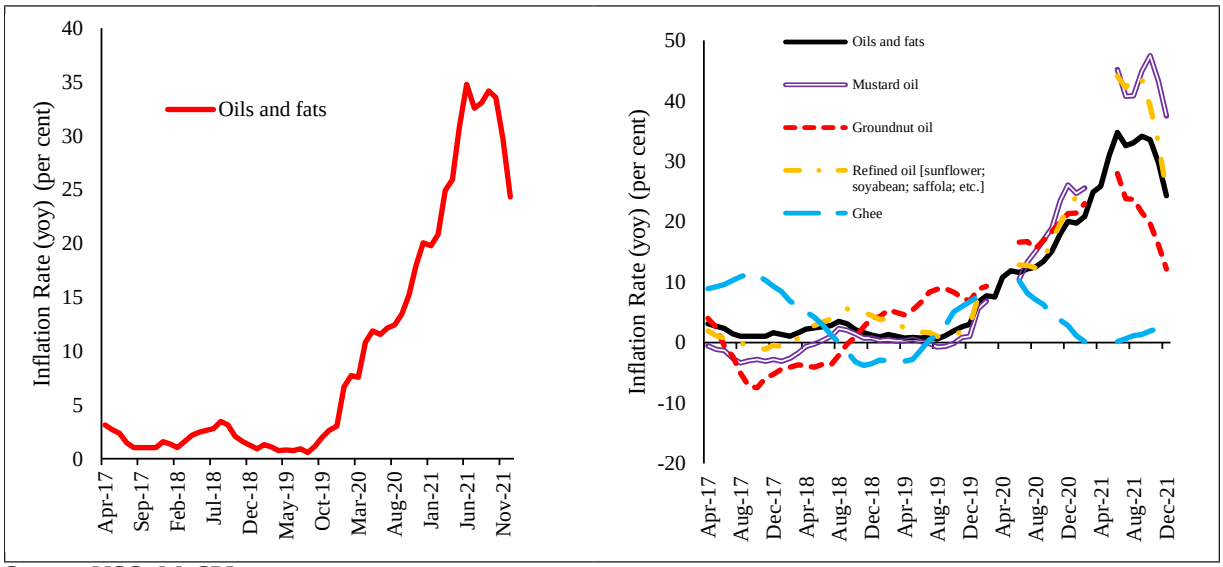
Both seasonal as well as shock components contribute in the spikes of the tomato and onion prices. Seasonality in prices resulting from seasonal production patterns require policy attention. Strategies to incentivize production during lean season should be designed. Investments in processing of surplus production of tomato, and processing and storage infrastructure of onion must be promoted. Cutting wastage of the production, better supply chain management will also help in meeting the demand.

Government is implementing various measures to overcome these challenges. The Mission for Integrated Development of Horticulture (MIDH) envisages holistic development of horticulture and provides assistance at 50 per cent of total cost of Rs. 1.75 lakh per unit for low-cost onion storage structure having a capacity of 25 tonne each. Government also procures onions directly from farmers at farm gate prices for the buffer. Schemes such as Agricultural Marketing Infrastructure (AMI) for rural godowns enables small farmers to enhance their holding capacity to sell their produce at remunerative prices and avoid distress sale. "Operation Greens" for integrated development of Tomato, Onion and Potato (TOP) value chain. It provides 50 per cent subsidy for the transportation and storage from surplus producing areas to consuming centres. Kisan Rail service, was launched on 7th August 2020 to enable speedy movement of perishables including fruits, vegetables, meat, poultry, fishery and dairy products from production or surplus regions to consumption or deficient regions.

5.15 'Oils and fats' contributed around 60 per cent of 'food and beverages' inflation despite having a weight of only 7.8 per cent in the group. Inflation of the sub-group has risen sharply since mid-2019; remained in double digits since April 2020 and witnessed further uptrend in

2021-22 (Figure 9). In 2021-22 (April - December), its inflation has been 30.9 per cent, and stood at 24.3 per cent in December 2021.

Figure 9: Inflation in 'Oils and fats' subgroup

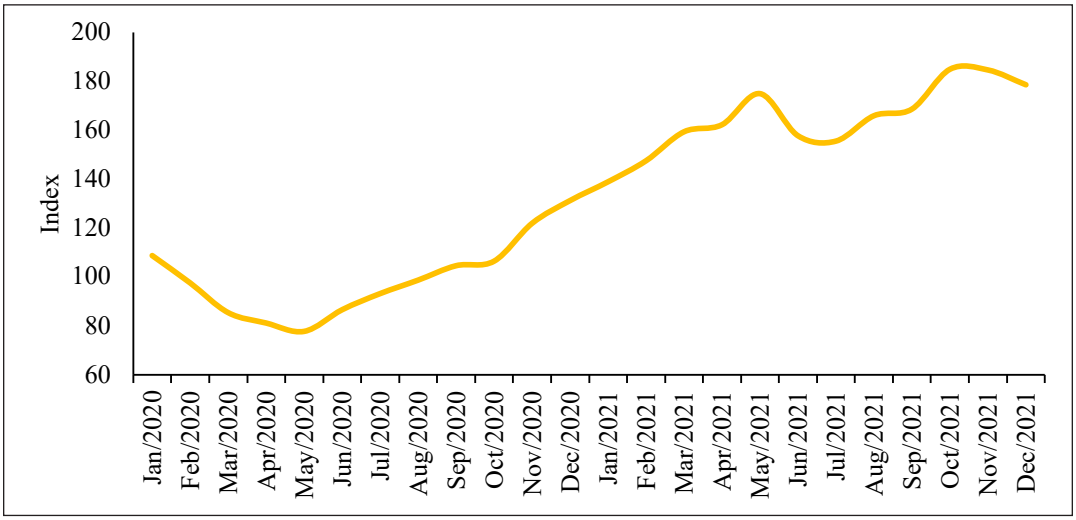


Source: NSO, MoSPI

Note: Item level indices for 'mustard oil', 'groundnut oil' 'refined oil' and 'ghee' were not available for March-May 2020.

5.16 India imports around 60 per cent of its consumption of edible oils', and Palm oils (Crude + Refined) constitutes around 60 per cent of the imports of edible oils (PIB, 2021). As a result, fluctuation in imports and international prices transmit to domestic prices of edible oil. The current spike in prices of edible oils is mainly on account of high and increasing international prices of edible oils. The rise in oils component of Food and Agriculture Organisation's (FAO) food price index from May 2020 onwards has been steep, and reached a 10-year high due to robust global import demand amidst the shortages over migrant labour impacting production in Malaysia (Figure 10; FAO, 2021).

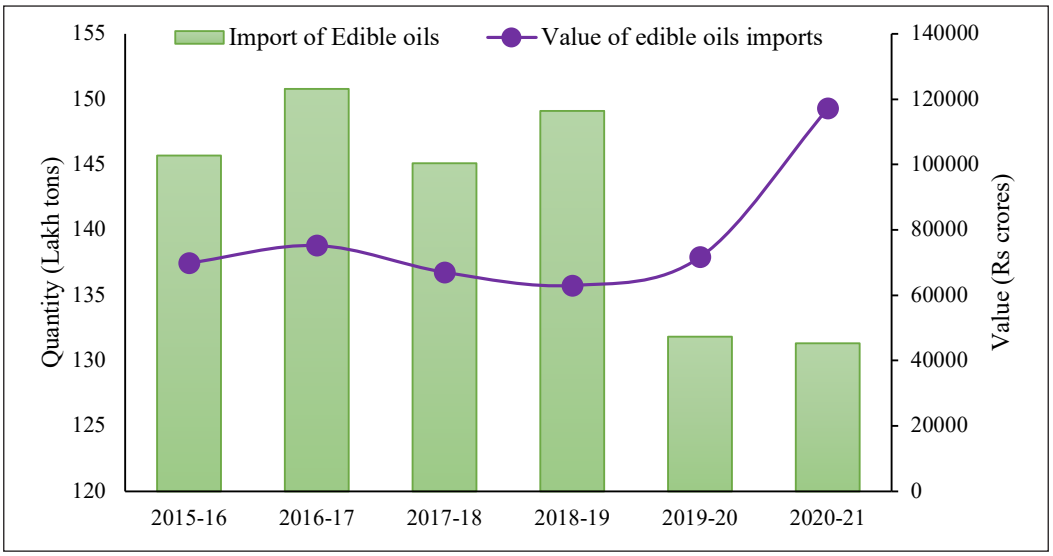
Figure 10: FAO Food Price Index: Edible oils component



Source: FAO

5.17 The rise in international prices were accompanied by a decline in imports of edible oils. During the oil year 2020-21 (November 2020-October 2021), India's imports of edible oils has been the lowest in last six years (Figure 11). However, in terms of value, it has increased by 63.5 per cent in 2020-21 as compared to 2019-20, reflecting the rise in international prices of edible oils.

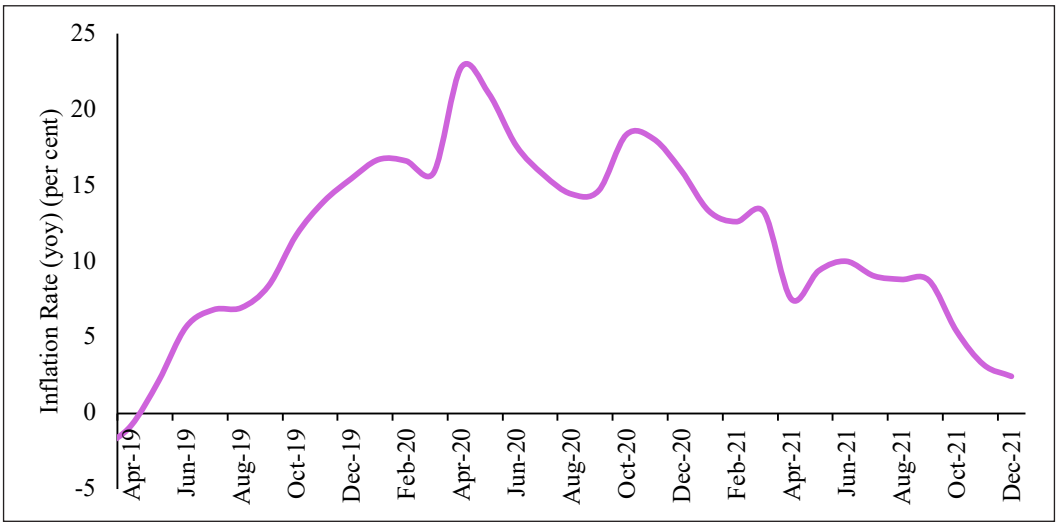
Figure 11: Import of Edible oils



Source: Solvent Extractors Association of India

5.18 Inflation in Pulses, recorded 16.4 per cent in 2020-21, has declined in 2021-22 (April-December) to 7.1 per cent, and 2.4 per cent in December 2021. The high inflation in 2020-21 was on account of supply-side disruptions as a fallout of restrictions imposed to contain spread of COVID-19, and stocking of pulses by households during the lockdown. With easing of restrictions and an increase in area sown for Kharif pulses to a new high of 142.4 lakh hectare (as on 1st October 2021) incentivised by high prices witnessed last year, pulses inflation is on a downward trajectory (Figure 12).

Figure 12: CPI-C inflation in Pulses and Products



Source: NSO, MoSPI

Box 2: Steps taken by the Government to augment the supply of essential commodities

The government has undertaken several measures to mitigate rise in prices of essential commodities:

Pulses and onion

Creating a buffer

- To ensure effective intervention during price rise through utilisation of buffer stocks, the Government has procured pulses in 2020-21 and 2021-22 from farmers/farmers' producers organisations (FPOs). The target for pulses buffer in 2021-22 is at 23 LMT. onion buffer of 2.08 LMT has been created in 2021-22 and released in a calibrated and targeted manner to contain price rise.

Import policy

- To augment domestic availability of pulses, Tur and Urad are kept under 'free' import category till 31st March, 2022.
- Basic import duty and Agriculture Infrastructure and Development Cess on Masur have been brought down to zero and 10 per cent respectively.
- 5-year MoUs have been signed with Myanmar for annual import of 2.5 LMT of Urad and 1 LMT of Tur, and with Malawi for annual import of 0.50 LMT of Tur. The MoU with Mozambique has been extended for another 5 years for annual import of 2 LMT Tur.

Edible Oils

- To soften the prices of edible oils, the duty on edibles oil has been reduced with effect from 14th October 2021.
- To soften the prices of edible oils, the basic duty on Refined palm oil/Palmolein, Refined Soyabean oil and Refined Sunflower oil has been reduced to 17.5 per cent from 32.5 per cent with effect from 14th October 2021.

Speculation and hoarding

- Futures trading in mustard oil on NCDEX has been suspended and stock limits have been imposed.
- The Department of Food and Public Distribution has imposed stock limits on Edible Oils and Oilseeds for a period up to 31st March, 2022. The Removal of Licensing Requirements, Stock Limits and Movement Restrictions on Specified Foodstuffs (Amendment) Order, 2021 has been issued w.e.f. 8th October, 2021. It has also been directed to ensure that Edible Oils and Edible Oilseeds stock is regularly declared and updated on the portal of the Department of Food & Public Distribution.

Production and alternates

- The government is taking steps to improve the production of secondary edible oils, especially rice bran oil to reduce the import dependence.

Soyameal included as essential commodity

- In a bid to cool down the domestic prices of Soya Meal, Government has notified an Order under

the Essential Commodities Act to declare 'Soya Meal' as an Essential Commodities up to 30th June, 2022 by amending the Schedule of the Essential Commodities Act, 1955. Stock limit on Soya Meal has been imposed for a period from 23rd December, 2021 upto 30th June, 2022.

Perishable essential commodities

- For perishables, Operations Green scheme was launched in November 2018. The scheme has later been expanded from TOP (Tomato, Onion, Potato) to TOTAL (41 perishables). Expansion of the scheme has resulted in widening the impact in terms of the production clusters and beneficiaries covered. Currently, 41 perishables from 52 production clusters are being covered. Since beginning till 15.12.2021, Rs.65.79 crore has been provided so far as subsidy towards transportation/storage of 3.05 lakh MT of TOP crops, the expansion of scheme has resulted in additional transportation/ storage of 2.82 lakh MT of crops other than TOP with additional subsidy of Rs.51.55 crore.
- Kisan Rail trains introduced to enable speedy movement of perishables from production or surplus regions to consumption or deficient regions. Since the launch of first Kisan Rail service on 7th August 2020 and up to 14th January 2022, Indian Railways have operated 1,900 Kisan Rail services, transporting approximately 6.23 lakh tons of perishables including fruits and vegetables.

Box 3: Liquified Petroleum Gas (LPG) and Kerosene price trend

LPG

The prices of petroleum products in the country are linked to the price of respective products in the international market. Prices of LPG in the country are based on Saudi Contract Price (CP), the benchmark for international prices of LPG. Saudi CP has risen approximately 258 per cent from April, 2020 to November, 2021 (236 USD to 846 USD).

LPG subsidy is governed under Direct Benefit Transfer for LPG consumers (DBTL) scheme, wherein the subsidy on domestic LPG is regulated based on direction of price trends in international market. Since May, 2020, there is no subsidy to the consumers on Domestic LPG (at Delhi Market). However, in far-flung areas and some other markets, there is some subsidy that varies from market to market mainly due to higher inland freight from port to bottling plant.

In order to provide clean cooking fuel to poor households, in May 2016 the Government launched "Pradhan Mantri Ujjwala Yojana" (PMUY) scheme to provide 5 crore deposit-free LPG connections, subsequently increased to 8 crore. The target of Scheme was achieved in September, 2019, 7 months ahead of the target. Implementation of PMUY majorly contributed to increase in national LPG coverage to from 61.9 per cent as on 01.04.2016 to 99.8 per cent as on 01.04.2021. Further, in budget speech made on 1st February, 2021, announcement was made to cover additional 1 crore beneficiaries under Ujjwala scheme. In its revised version, Pradhan Mantri Ujjwala Yojana was launched as Ujjwala 2.0, by Hon. Prime Minister in August 2021. While it covers all existing eligible categories of beneficiaries, Ujjwala 2.0 makes specific relaxations for migrants who can submit a simple self-declaration as an address-proof, arranging which used to be a major hassle for migrant. Also, free first refill and stove is being provided to all Ujjwala 2.0 beneficiaries. As on 31.12.2021, a total of 96 lakh deposit-free LPG connections have been released under Ujjwala 2.0 scheme, including 2.2 lakh for migrants.

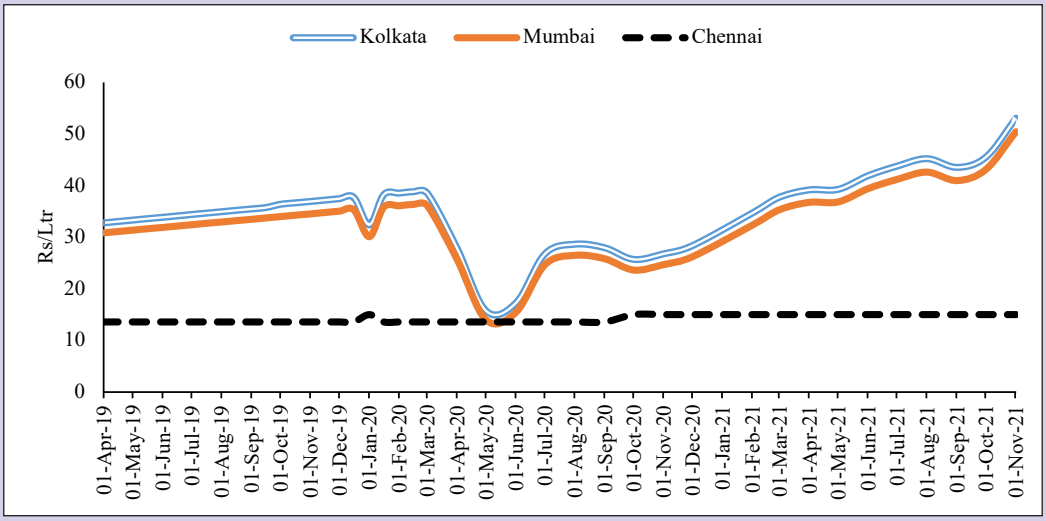
Kerosene

Kerosene has traditionally been used to meet the lighting and cooking needs, especially in rural areas. Government has decided to phase out use of kerosene for cooking and lighting in view of the increasing coverage of electricity for lighting needs and LPG as a clean cooking fuel. Post Saubhagya (Pradhan Mantri Sahaj bijli har ghar yojana) and Pradhan Mantri Ujjwala Yojana the use of kerosene is steadily going down.

Out of 37 states/UTs, 11 states/UTs[2] are kerosene free i.e no PDS Kerosene is allocated to these states/ UTs by Ministry of Petroleum and Natural Gas (MOP&NG). The balance states/UTs are allocated PDS Kerosene by MOP&NG on a quarterly basis. Kerosene is distributed through PDS and is sold at market price with zero central subsidy. The allocation varies from State to State depending on factors like LPG penetration, non-lifting of PDS Kerosene, voluntary requests for surrender/reduction. State Government of Tamil Nadu is still subsidizing kerosene through state subsidy.

Effective from 1st March, 2020, the retail selling price of PDS Kerosene is being maintained at NIL under-recovery level on pan India basis and is made available to the states at market prices.

Figure 3A: PDS Kerosene Prices



Source: MoPNG

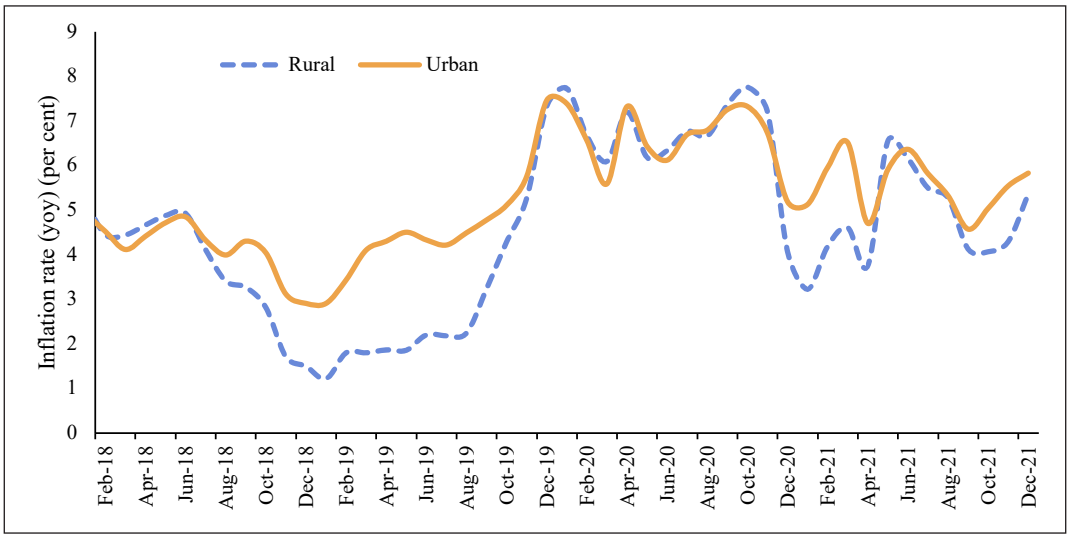
Rural -- Urban inflation differential

5.19 The large gap witnessed between rural and urban CPI inflation from July 2018 to December 2019 was largely on account of differential rates of food inflation. The gap, however, declined in 2020 (Figure 13). In 2020, CPI-Urban inflation moved closely with CPI-Rural inflation.

5.20 We observe two main divergence points- November 2020 to March 2021, and in September 2021 onwards. The dominant factor in divergence pattern turns out to be 'food and beverages' group. This is mainly on account of large weights that have been assigned to 'food and beverages' group in both CPI rural and urban (Figure 14). Inflation of 'fuel and light' in rural areas has been different from urban areas mainly because of different fuel consumption patterns in the two sectors. However, it doesn't emerge as the dominant factor in diverging patterns of CPI-Rural and CPI-Urban mainly because of low weights assigned in the overall index.

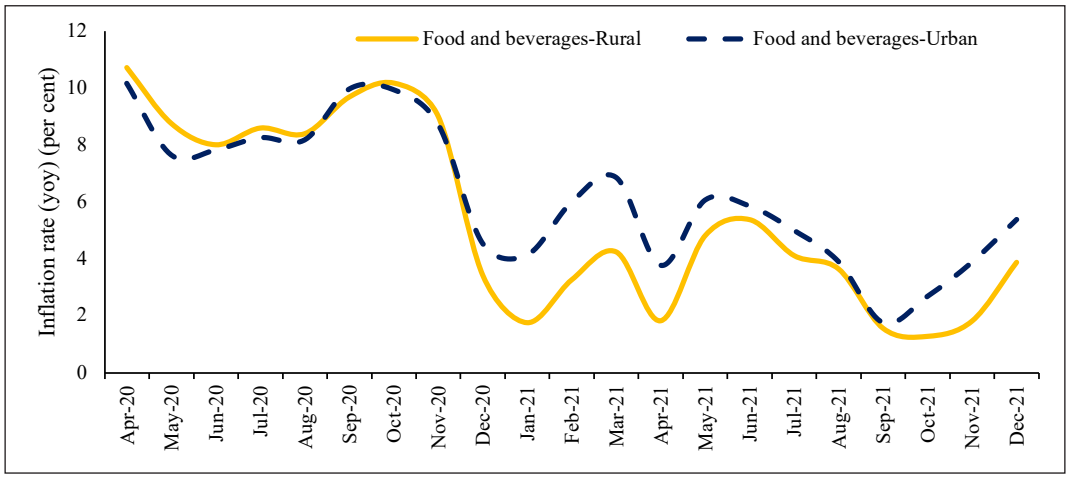
[2]Andhra Pradesh, Arunachal Pradesh, Chandigarh, Dadra & Nagar Haveli, Daman and Diu, Delhi, Haryana, Puducherry, Punjab, Rajasthan and Uttar Pradesh

Figure 13: CPI Rural and Urban Inflation



Source: NSO, MoSPI

Figure 14: 'Food & Beverages' Inflation in Rural and Urban



Source: NSO, MoSPI

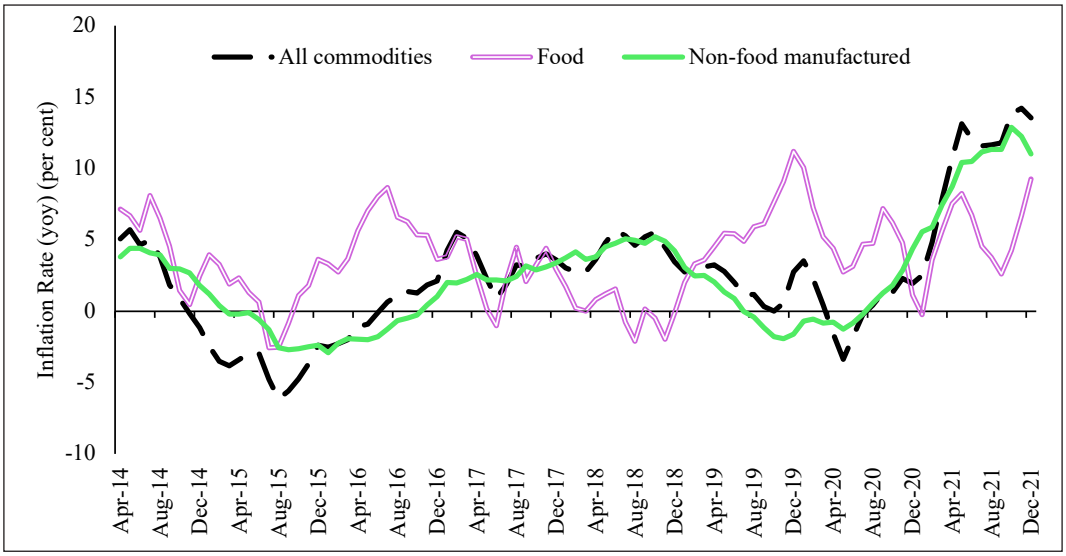
Trends in Wholesale Price Index based Inflation

5.21 WPI inflation during the current financial year, in contrast to the trends observed in CPI-C inflation, has shown an increasing trend, and remained high (Figure 15). WPI inflation has been benign during 2020-21 and 2019-20 while being moderate or low in the preceding years. Therefore, part of the high inflation in WPI being witnessed currently could be because of a low base in the previous year.

5.22 While WPI inflation has been higher in the current financial year compared to the previous year in all the three major groups, it was above 20 per cent in 'fuel and power' group reflecting the high international petroleum prices as mentioned earlier (Table 3). Within the primary articles group, 'crude petroleum & natural gas' sub-group has witnessed very high inflation and stood at 55.7 per cent in December 2021. Similarly, minerals has witnessed high inflation throughout the year. Impact of rising international prices in WPI manufacturing was clearly visible, especially in manufacture of basic metals (Box 4). Manufacture of basic metals saw

inflation of 27.3 per cent in 2021-22 (April-December). Within manufactured food products, edible oils were a major contributor. During 2021-22 (April to December), edible oils inflation in WPI was 36.4 per cent. As mentioned earlier, the high import dependence on edible oils has meant that high international prices in these products are also reflected in the domestic prices. Inflation in manufacture of textiles also remained high at 15.3 per cent during this period pushed up by the rise in the prices of textile fibres.

Figure 15: Trend in WPI – All commodities, Food and Non-food manufactured products inflation



Source: Office of Economic Adviser, DPIIT

Table 3: Inflation in selected groups of WPI- Base 2011-12 (in per cent)

	Weight	2019-20	2020-21	2020-21^	2021-22#	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21(P)	Dec-21(P)
All Commodities	100	1.7	1.3	0.0	12.5	10.7	13.1	12.1	11.6	11.6	11.8	13.8	14.2	13.6
Primary Articles	22.6	6.8	1.7	1.3	8.6	9.9	9.4	8.6	6.3	5.9	6.0	7.4	10.3	13.4
Food articles	15.3	8.4	3.2	4.0	2.5	4.6	4.2	3.3	0.1	-0.8	-2.6	1.0	4.9	9.6
Cereals	2.8	7.5	-2.6	-1.4	0.1	-3.1	-2.6	-2.8	-2.9	-1.1	1.3	3.2	4.0	5.1
Pulses	0.6	15.9	11.6	12.1	8.1	10.7	12.1	11.6	8.4	9.5	9.3	5.0	2.9	3.9
Vegetables	1.9	31.1	3.4	7.6	-6.6	-9.0	-7.2	-0.8	-8.3	-12.6	-32.3	-17.4	3.9	31.6
Non-Food Articles	4.1	4.6	1.3	-0.4	20.4	15.6	18.4	18.6	22.9	28.7	29.5	18.4	13.8	19.0
Minerals	0.8	13.2	6.8	3.5	15.3	20.6	13.3	15.3	12.6	7.2	30.8	16.6	20.9	3.8
Crude Petroleum & Natural Gas	2.4	-7.6	-17.4	-25.2	57.9	80.8	59.5	47.0	42.3	34.5	49.0	86.4	76.6	55.7
Fuel & power	13.2	-1.8	-8.0	-11.6	31.4	21.3	36.7	29.3	27.0	28.2	29.5	38.6	39.8	32.3
Manufactured Products	64.2	0.3	2.8	1.5	11.3	9.4	11.3	11.0	11.5	11.6	11.6	12.9	11.9	10.6
Food products	9.1	4.1	5.6	5.0	12.5	13.1	15.6	13.3	13.1	12.7	12.9	12.8	10.3	8.7
Edible oils	2.6	1.5	20.3	17.5	36.4	44.5	51.9	43.6	42.7	40.7	37.4	33.2	23.2	16.8
Food Index	24.4	6.9	4.0	4.3	5.9	7.5	8.2	6.7	4.5	3.8	2.6	4.3	6.7	9.2
Non-Food manufactured products (Core)	55.1	-0.4	2.2	0.8	11.1	8.7	10.4	10.5	11.1	11.3	11.3	12.9	12.3	11.0

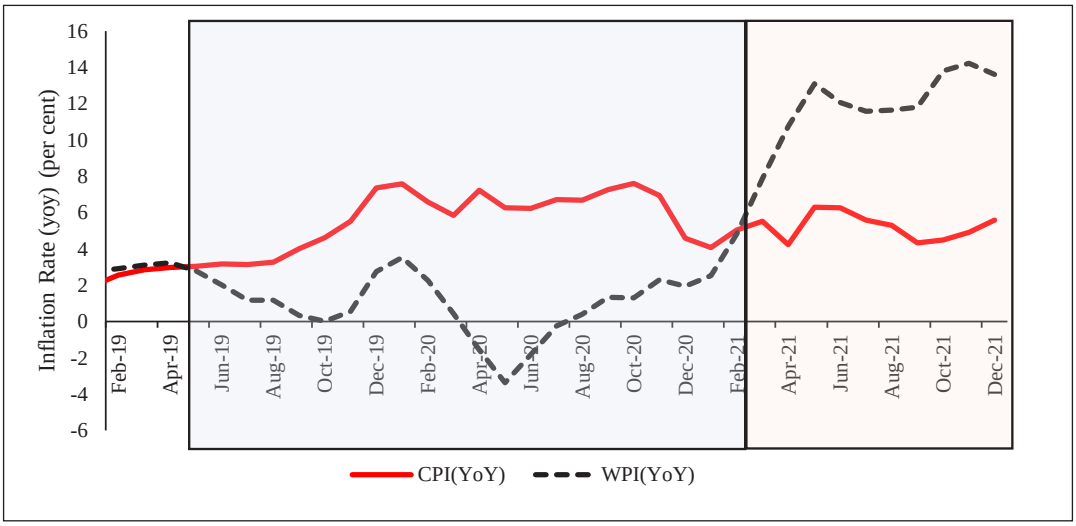
Source: Office of the Economic Adviser, DPIIT P: Provisional
^April to December 2020; #April to December 2021

Divergence between WPI and CPI based Inflation rates

5.23 The year-on-year inflation rate based on the WPI and the CPI-C has recorded a divergence since June 2019. Between June 2019 and February 2021, wholesale inflation was lower than retail inflation, while between March 2021 and December 2021, wholesale inflation remained above the retail inflation. WPI inflation during the current year was higher than the CPI but there was also a significant widening of the divergence (Figure 16). In December 2021, WPI based inflation rate was 8 percentage points higher than the retail inflation. This trend raises the potential question: Why is CPI inflation diverging from WPI inflation with WPI inflation being higher than CPI inflation?

5.24 Consequent to the impact of the COVID-19 pandemic, production activity remained muted in 2020-21 and global crude oil prices reached record lows due to lack of demand. Therefore, the WPI based inflation rate touched a low of 1.3 per cent in 2020-21. With economic activity picking up in 2021-22 and edging up of global crude oil prices, the low base of 2020-21 led to WPI inflation reaching a peak of 14.2 per cent in November 2021 and 12.5 per cent during April-December 2021 (as against 0.04 per cent during April-December 2020-21). Therefore, the high WPI based inflation rate in 2021, is largely attributable to the low base of the preceding year. On the other hand, retail inflation that had remained high during 2020-21 due to supply chain disruptions and high food inflation, moderated in 2021-22 on account of effective supply side management, resulting in a divergence between WPI and CPI based inflation.

Figure 16: Divergence between YoY inflation in CPI and WPI



Source: NSO, MoSPI and OEA, DPIIT

5.25 While the base effect could be one of the reasons for the divergence in the WPI and CPI, the current divergence in the two indices can also be explained through the conceptual difference in their purpose and design and the price behavior of the different components of the two indices. CPI reflects the buying behaviour of consumers, derived based on the household consumption patterns using NSS Household Consumer Expenditure Survey, and reflects price movements at the retail level. On the other hand, WPI based inflation rate is based on the share of the respective items in total wholesale transactions in the economy at the first point of sale. Therefore, while the weights of items in CPI-C are based on the consumption pattern

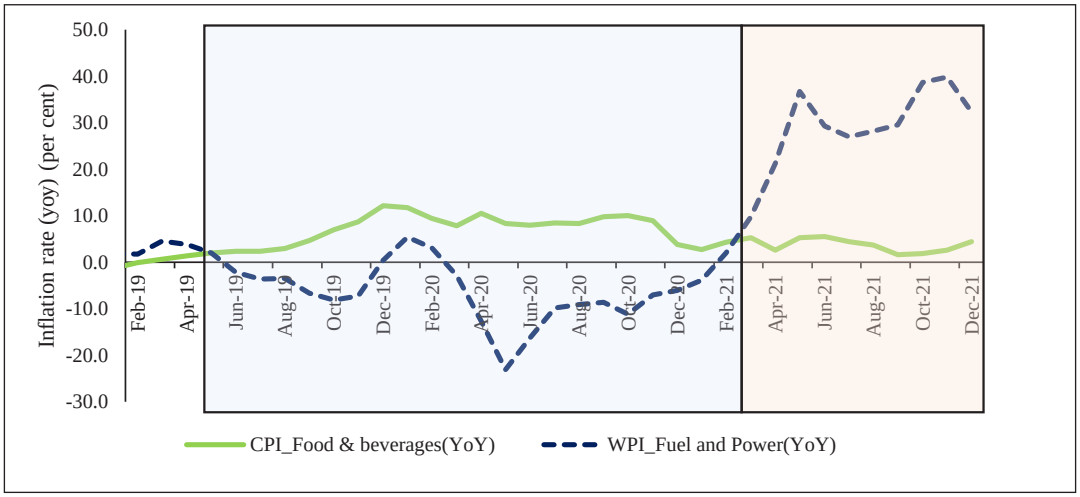
of consumers and households, in case of WPI series, weights of the item basket are derived by calculating the net traded value to the domestic production by adding net imports to domestic production.

5.26 The weights and the importance of specific commodity groups vary significantly in the CPI and WPI. While in CPI, food and beverages have the highest weight (45.9), in WPI, the manufactured group has the highest weight (64.2). The weight of fuel group is much lower in CPI (6.8) as compared to WPI (13.2). Fuel in CPI is also partially reflected under miscellaneous group under 'transport and communication'. The miscellaneous group in CPI, which makes up about a fourth of the index (28.3), includes services like education, health, recreation, and goods such as gold jewellery. Services are not included in WPI.

5.27 Retail food inflation rose sharply during 2020 due to supply chain disruptions. As supply-side bottlenecks eased and effective supply side measures were taken particularly for items like pulses and edible oils for which imports have been high, food inflation witnessed a decline in 2021 and was 4.0 per cent in December 2021. Average food inflation is at a low of 2.9 per cent in 2021-22 (April-December) as against 9.1 per cent in the corresponding period last year. As against a weight of 45.9 in CPI, food articles have a weight of only 24.4 in the WPI (Food articles in primary group plus those in manufactured group). The high weight of food in the CPI makes CPI more responsive to changes in food prices over WPI.

5.28 As stated above, WPI assigns a large weight to manufactured products and 'fuel and power' group. With the near shutdown of industrial activity across nations for long periods on account of the pandemic, energy and inputs demand witnessed a sharp decline and led to a dip in manufactured products inflation. However, with reopening up of the economies worldwide, unanticipated increase in energy prices and emergence of industrial input cost pressure and high freight costs led to a sharp spike in WPI inflation in 2021. This was reflected in high WPI inflation in the fuel group and manufactured sector during the year. Thus, while on the one hand, low food inflation pulled down CPI, on the other hand high energy and input prices pulled up WPI based inflation rate (Figure 17).

Figure 17: YoY Inflation cycles in retail food and wholesale energy prices

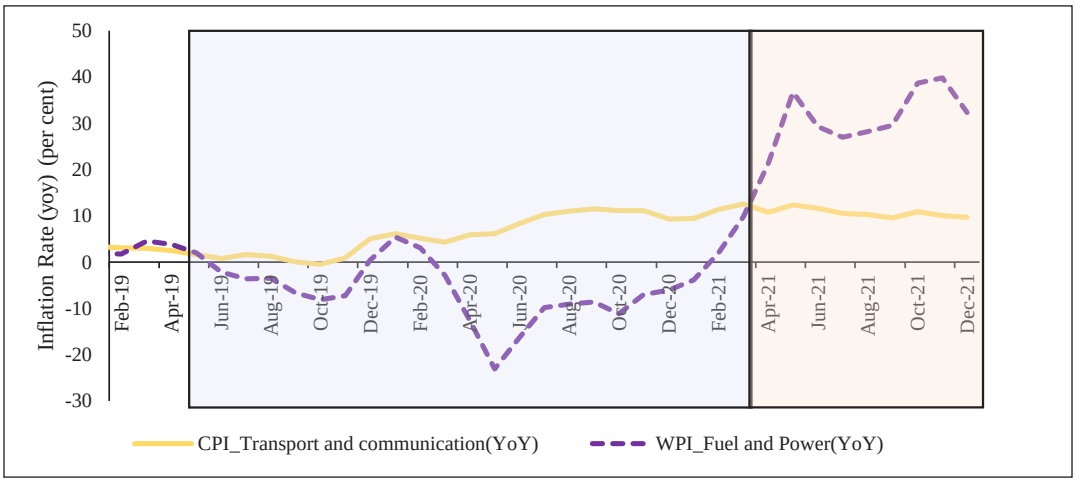


Source: NSO, MoSPI and OEA, DPIIT

5.29 The manufactured sector not only uses crude oil but also several other imported items as inputs such as iron ore, aluminium, other metals and cotton. The intermediate and inputs items of WPI, not part of CPI, play a role in its divergence from CPI. The spike in global prices of various input items which have a high import share, would significantly impact WPI (Box 4), and not CPI.

5.30 While inflation in CPI subgroup 'transport and communication', which includes the petrol and diesel for vehicle, steadily inched up, WPI's sub-group 'fuel and power', which includes petrol and diesel, remained very volatile (Figure 18). The contribution of fuel group in WPI inflation was higher on account of their higher weight in the index as compared to that of subgroup 'transport and communication' in the CPI. (Figure 18)

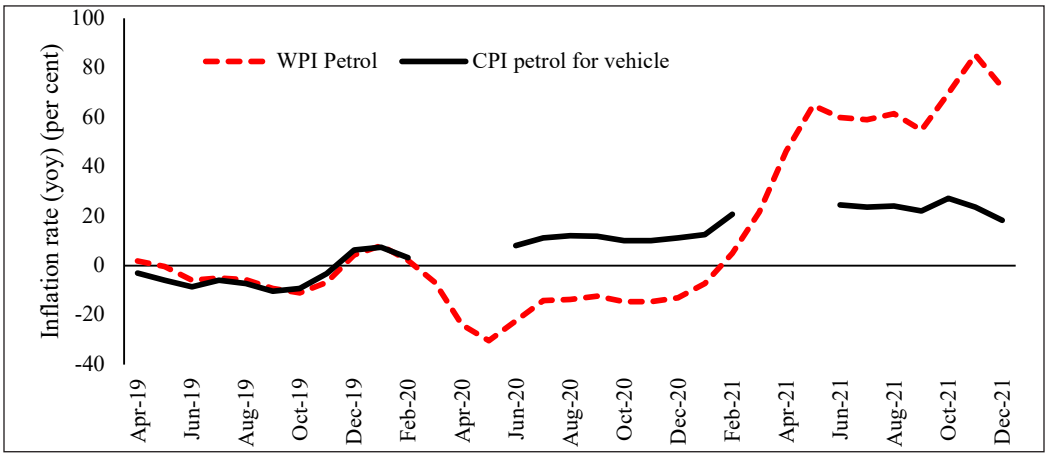
Figure 18: Diversion between retail and wholesale energy inflation rates



Source: NSO, MoSPI and OEA, DPIIT

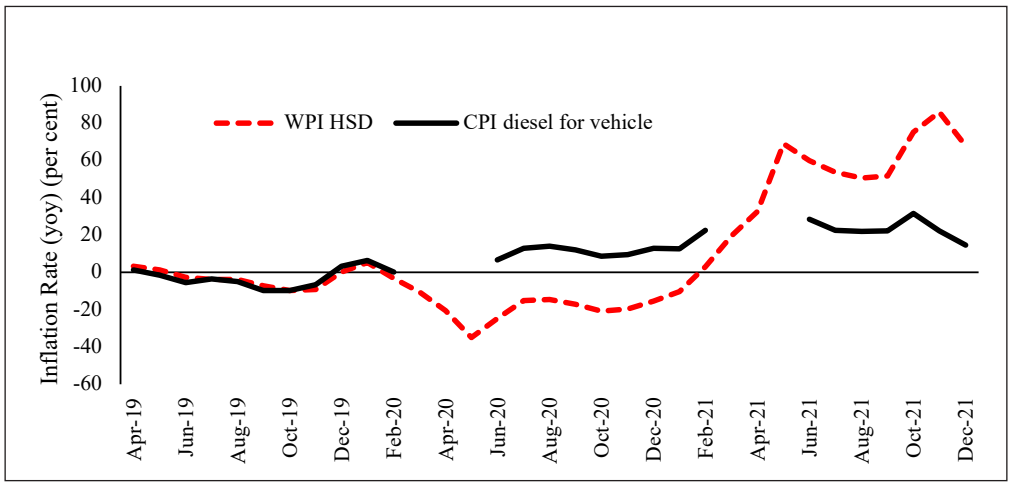
5.31 The decline in wholesale prices of petrol and diesel in 2020 (it excludes taxes and levies), due to the decline of crude oil demand, created the low base for wholesale inflation during 2021, while, retail inflation of petrol and diesel was impacted by the higher excise duties that were levied as revenues from other sources dried up due to disruption of economic activity. With the revival of economic activity in 2021-22, crude oil prices started inching up. In November 2021, a reduction in central excise duty was announced for diesel and petrol. While this cut in central excise duties and subsequent reduction in VAT by majority of the states had a dampening effect on retail prices of diesel and petrol, wholesale prices continued to reign high resulting in the widening of the divergence (Figure 19 & 20).

Figure 19: Retail and wholesale inflation rate of Petrol



Source: NSO, MoSPI and OEA, DPIIT
Note: Item level index for CPI petrol for vehicle was not available for March-May 2020.

Table 20: Retail and wholesale inflation rate of Diesel



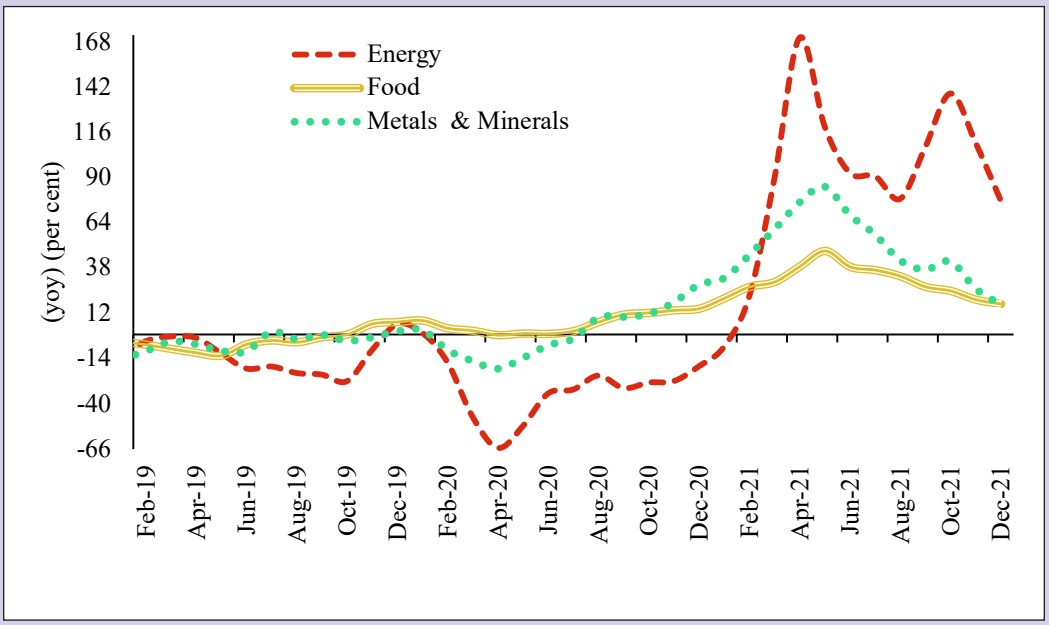
Source: NSO, MoSPI and OEA, DPIIT
Note: Item level index for CPI diesel for vehicle was not available for March-May 2020.

5.32 Another reason for divergence is the lagging demand pick up. While production has gradually picked up in 2021-22 to reach the pre-pandemic levels, consumption demand is yet to normalise fully. With weak pass on, the divergence between WPI and CPI is increasing but is expected to wane gradually with the weakening of the base effect.

Box 4: Global commodity prices and domestic inflation

International commodity prices rose sharply during the second half of 2020 and 2021. Fluctuations have been more in energy prices. After registering negative growth during the COVID-19 period, the energy index has recorded triple digit growth in 5 out of 12 months since January 2021 (Figure 4A). Food and metals and mineral prices have shown double digit growth during the current year.

Figure 4A: Year on year growth in international commodity price indices



Source: World Bank commodity price indices

While inflation in food items in India remained under control because of supply-side management, high global prices of manufacturing items have had an impact on the domestic prices, especially basic metals. The rise in demand for vehicles, manufactured goods, and pickup in construction activities have led to the rise of global aluminium prices. Due to environmental concerns, China, a major exporter of aluminium, has curtailed its production.

Copper prices have increased through the initial months of 2021. The increase in prices is also because of extraordinary global uptake in consumer goods and demand from China due to its enhanced investment in infrastructure and construction. Falling inventories and threats of strikes in Chile and Peru has elevated production risks and created pressure on copper prices (World Bank, 2021).

The initial surge of iron ore prices largely reflected the robust demand for steel production in China, leading to higher iron ore imports. However, recently decline in prices has been observed. Iron ore supplies have improved in recent months after the earlier weather disruptions in top exporter Australia and coronavirus outbreaks in number two shipper Brazil.[3]

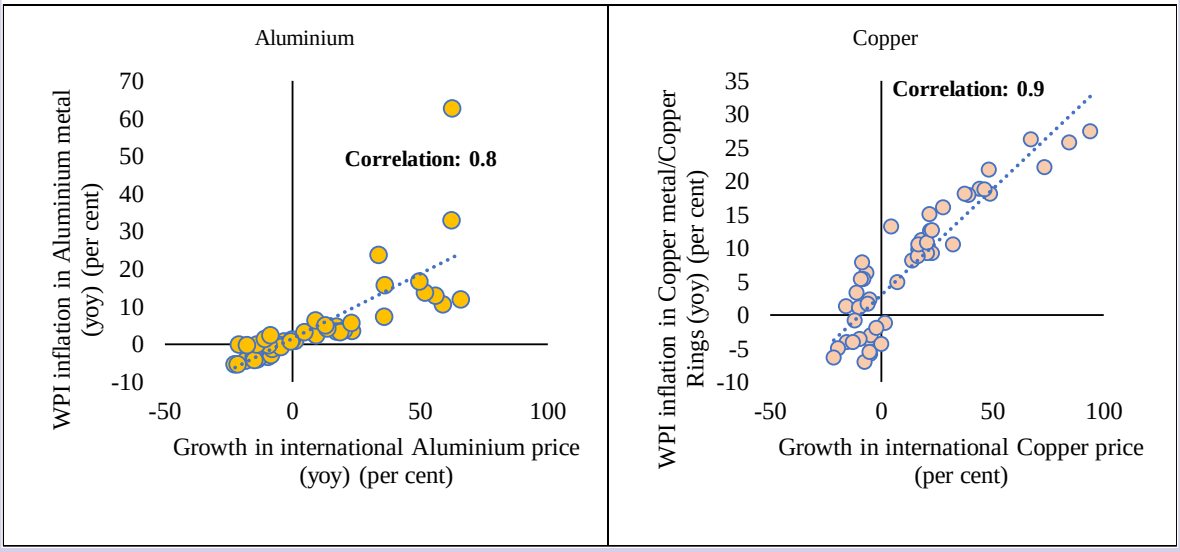
[3]https://www.reuters.com/world/americas/iron-ore-makes-unruly-retreat-more-normal-price-levels-russell-2021-09-20/

Tin prices surged by more than 33 per cent in the first quarter, reaching a 10-year high in March 2021. Prices were lifted by buoyant demand for tin solder in consumer electronics, as well as supply disruptions due to lockdowns in Bolivia, Peru, and Malaysia, voluntary production cuts in Brazil and Indonesia, and political turmoil in Myanmar (World Bank, 2021a).

International cotton prices have been showing an upward trend since May 2020 and have reached levels higher than those witnessed in the last ten years. Cotton Index price which stood at $1.40/kg in April 2020, has sharply risen to $2.79/kg in November 2021, though it has reduced to $2.65/kg in December 2021. The strengthening of prices of cotton is owing to the improvement in demand for cotton after COVID-19 related contraction witnessed in 2020 (World Bank, 2021b).

Domestic inflation as measured through WPI of related items have been highly correlated with growth in the international prices of these commodities. The inflation in domestic aluminium and copper prices is positively and highly correlated with international prices (Figure 4B).

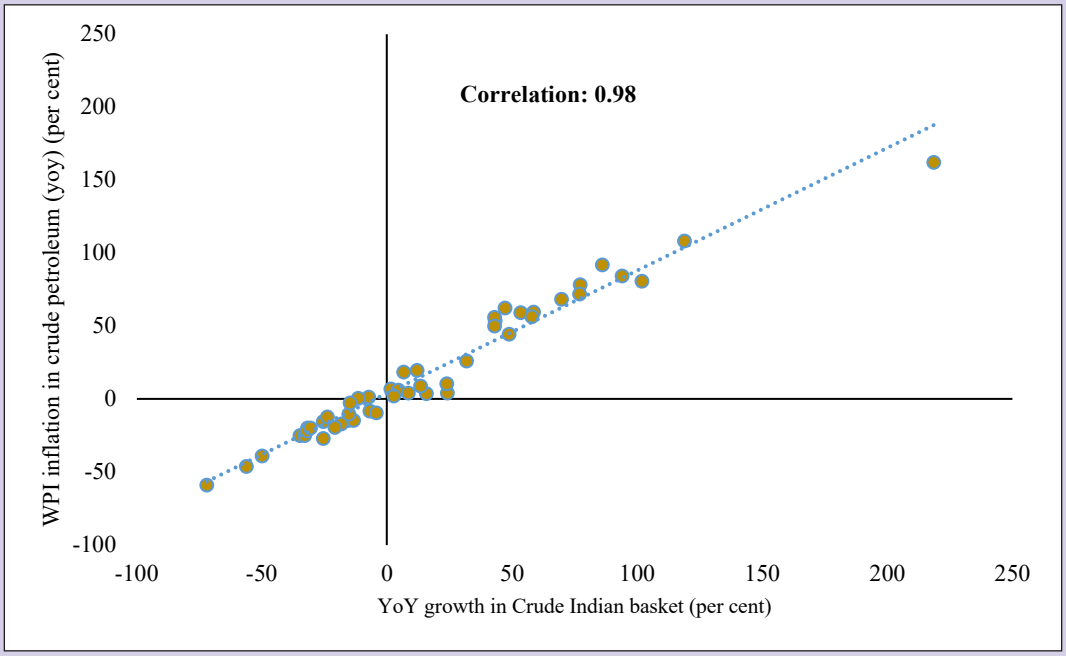
Figure 4B: International inflation in Aluminium, Copper and WPI inflation in related items (January 2018-December 2021)



Source: World Bank and OEA, DPIIT

India imports most of its consumption of crude oil. As expected, domestic crude oil prices are exclusively related to Indian crude basket prices (Figure 4C). WPI inflation in crude petroleum has a correlation of 0.98 with the YoY growth in price of Indian basket of crude oil.

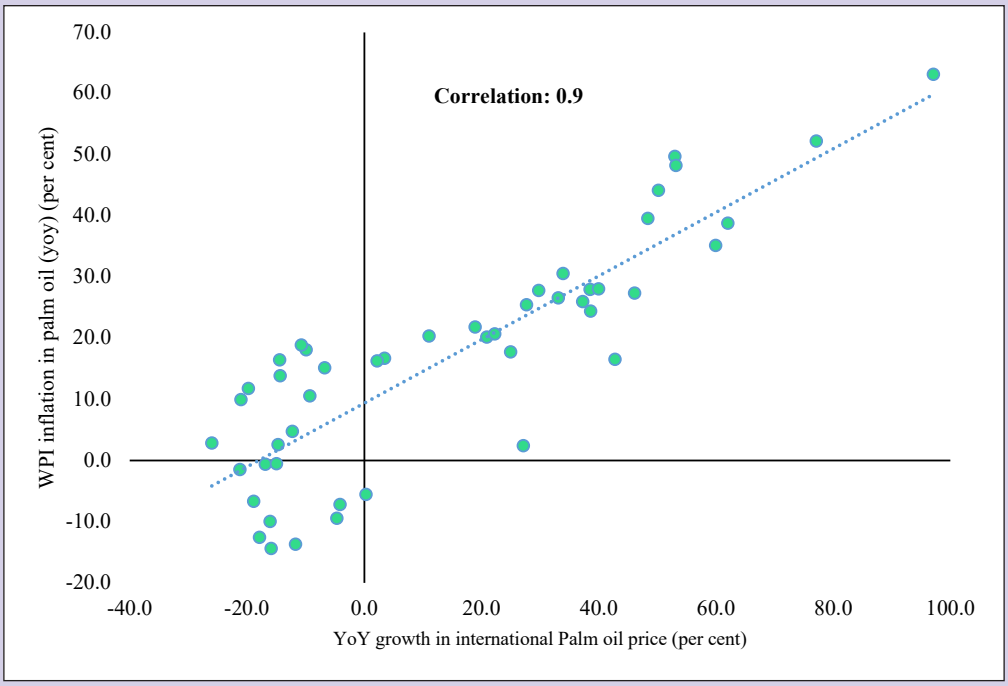
Figure 4C: International inflation in Crude oil and WPI inflation in crude petroleum (January 2018-December 2021)



Source: PPAC and OEA, DPIIT

India also imports substantial share its consumption of edible oils. Any change in international prices of palm oil gets transmitted into domestic prices as their correlation is around 0.9. (Figure 4D).

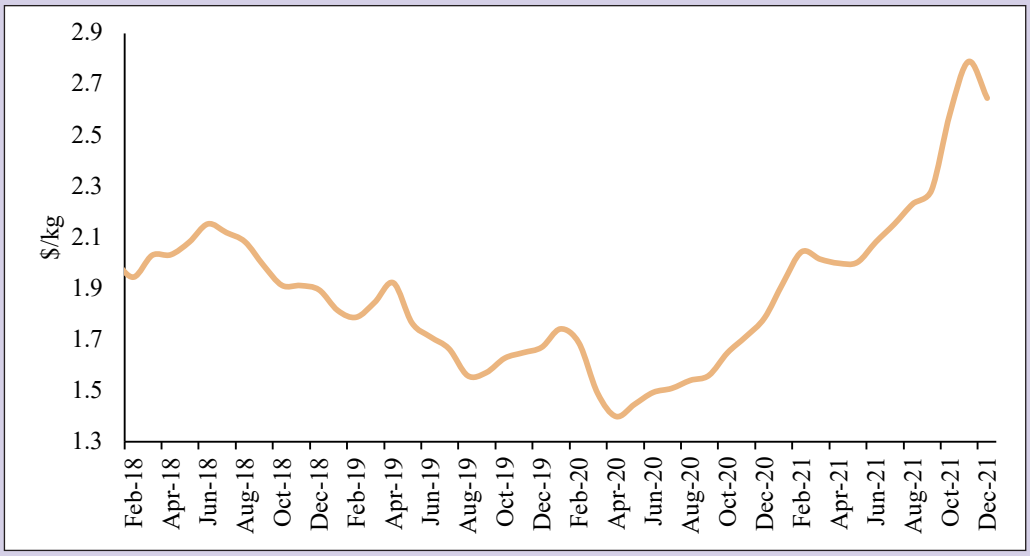
Figure 4D: WPI inflation and international inflation in Palm oil (January 2018 – December 2021)



Source: World Bank and OEA, DPIIT

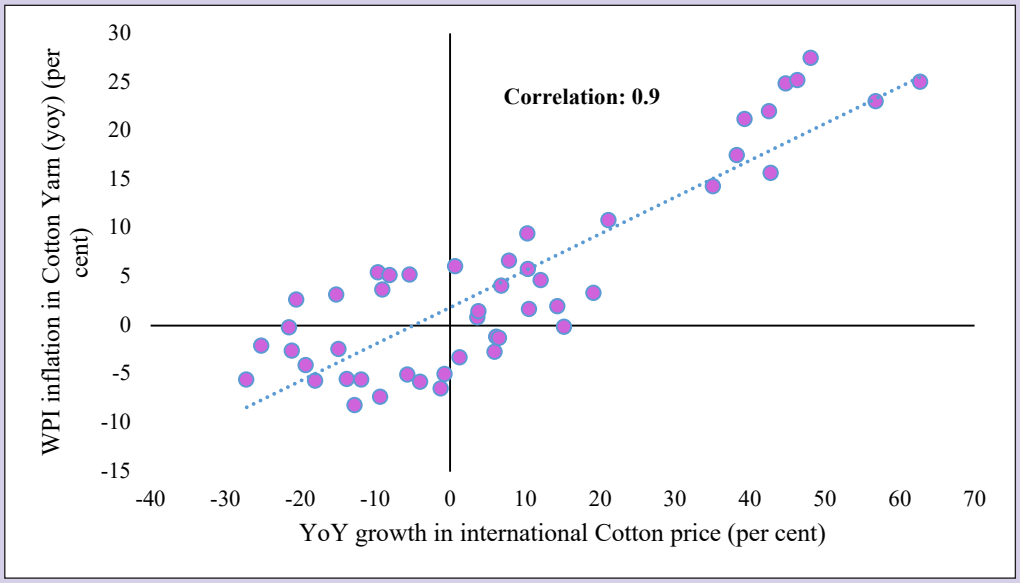
India is a major producer, consumer, and exporter of cotton. Therefore, the prices of domestic cotton and international prices are closely linked. The following figure shows the trends in international cotton prices. Figure 4F shows the high correlation (0.9) between WPI inflation in cotton yarn and international inflation in raw cotton.

Figure 4E: International cotton price (A Index)



Source: World Bank

Figure 4F: WPI inflation in Cotton Yarn and international inflation in Cotton (January 2018 – December 2021)



Source: World Bank and OEA, DPIIT

The high inflation rate reported in the manufactured Group in the WPI is therefore significantly attributable to "imported inflation" resulting from high prices of imported inputs. High freight costs and longer delivery times further exacerbated the price pressure on imported inputs.

HOUSING PRICES

5.33 The residential housing sector was also affected by COVID-19 induced restrictions through both supply and demand channels. Amidst initial COVID-19 restrictions, not only construction of new houses slowed down, but launch of new housing projects also got delayed. With the loss of income, uncertainty about future income, and stay at home orders, home buyers delayed their housing purchases. After the initial COVID-19 induced restrictions were removed, transactions in housing properties increased significantly, possibly because of pent up demand and improvement in affordability in response to measures taken by government during the pandemic, such as lower interest rates, reduction in circle rates, and cut in stamp duties, that made houses affordable to buyers (Box 5). Besides, several major banks, mortgage companies, and housing finance companies have significantly reduced their interest rates on home loans, that fueled the revival in housing demand. During second COVID-19 wave (April-June, 2021), transactions of housing properties were once again impacted adversely, but not as much as it was seen during first COVID-19 wave (April-June, 2020).

5.34 National Housing Bank (NHB) RESIDEX HPI@Assessment Prices index (Base 2017-18) captures[4] the prices of residential housing properties for the transactions through primary lending institutions. Data on composite index for prices and transaction records from NHB have been used to analyze the impact of first and second COVID-19 wave on the housing transactions and prices across a sample of 12 cities.

Box 5: Recent measures taken by government to enhance housing affordability

- Reduction in circle rates and stamp duties by various state governments like Delhi, West Bengal, Maharashtra to boost housing sales.

Tax benefits

- Tax holiday to affordable housing projects until March 31, 2022.
- Eligibility for tax deductions for affordable housing announced in the 2019-20 budget has been extended till March 2022. This tax deduction can be of up to 1.5 lakh rupees and will be provided on interest paid on loans for self-occupied house owners (Budget 2021-22).

Schemes

Pradhan Mantri Awas Yojana – Urban (PMAY-U)

- PMAY-U aims to address urban housing shortage among the Economically Weaker Section (EWS)/

[4]NHB RESIDEX tracks the movement in prices of residential properties in select cities on quarterly basis. From the April-June, 2018 quarter the base year has been shifted to FY 2017-18. The revamped NHB RESIDEX is wider in its geographic coverage and captures two Housing Price Index (HPIs) viz. HPI @ Assessment Prices and HPI @ Market Prices for Under Construction Properties, both for 50 cities. The current data sources are valuation data of Banks and HFCs for HPI @ Assessment Prices and primary & secondary market data for HPI @ Market Prices for Under Construction Properties. The coverage is spread across 21 states in India, including 18 State/UT capitals and 33 smart cities. The housing prices are classified on the basis of carpet area size at city level (INR/sq.ft.) for units under three product category levels namely <=60 sq.m., >60 & <=110 sq.m., and >110 sq.m. The indices are computed using Laspeyres Methodology, followed by calculation of a four Quarter Weighted Moving Average with application of dynamic weights at product category level and static base year weights on the weighted moving average product category level prices, across all the quarters starting from the new base year.

Low Income Group (LIG) and Middle Income Group (MIG) categories including the slum dwellers by ensuring a pucca house to all eligible urban households by the year 2022.

- Affordable Rental Housing Complexes (AHRCs) for urban migrants/ poor as a sub-scheme under Pradhan Mantri Awas Yojana – Urban (PMAY–U). Existing vacant government funded housing complexes will be converted in ARHCs through Concession Agreements for 25 years. Concessionaire will make the complexes livable by repair/retrofit and maintenance of rooms and filling up infrastructure gaps like water, sewer/ septage, sanitation, road etc. States/UTs will select concessionaire through transparent bidding. Complexes will revert to urban local bodies after 25 years to restart next cycle like the earlier one or run on their own. In addition, special incentives like use permission, 50 per cent additional Floor Area Ratio (FAR)/Floor Space Index (FSI), concessional loan at priority sector lending rate, tax reliefs at par with affordable housing etc. will be offered to private/ public entities to develop ARHCs on their own available vacant land for 25 years.

Credit Linked Subsidy Scheme for Middle Income Group

- The Credit Linked Subsidy Scheme for Middle Income Group (annual Income between Rs 6 - 18 lakhs) being implemented since January 2017, was extended up to March 2021 to benefit 2.5 lakhs middle income families with targeted investment of over Rs 70,000 crore in housing sector under the Atma Nirbhar Programme announced in May 2020. This was also expected to stimulate demand for steel, cement, transport and other construction materials.

5.35 It can be broadly observed from Figure 21 A and 21 B that the response of housing transactions to COVID-19 shock is much higher than the response of housing prices. This implies that shocks to housing sector adjust more through changes in transactions than prices. As price response remains relatively lower than the response of transactions therefore transactions are better indicator to gauge sentiments in the housing market. While house transactions mostly declined during the COVID-19 shocks, their prices did not fall in most of the selected cities, some even increased.

5.36 Further, decline in housing transactions have also been much less during second COVID-19 wave than the decline during first COVID-19 wave. Figure 21 A compares the change in transactions in first COVID-19 wave and during the second-COVID-19 wave from the pre-pandemic levels (April-June, 2019). During first COVID-19 wave housing transactions declined in almost all selected cities. However, during second wave of COVID-19, the housing transactions in many cities such as Mumbai, Thane, Pune, Noida, Hyderabad, and Bengaluru increased relative to the pre-pandemic levels. In cities such as Gandhinagar, Ahmedabad, Chennai, Ranchi, Delhi & Kolkata the housing transactions declined during second COVID-19 wave over the pre-pandemic levels. However, this decline has been much less than the decline during the first COVID-19 wave.

5.37 Unlike the decline in quarterly housing transactions during first and second COVID-19 waves, the impact of the COVID-19 shock on the prices of residential properties was not uniform across the cities. Figure 21B compares the change in price index during the first COVID-19 wave and during the second-COVID-19 wave over the pre-pandemic level. During the first COVID-19 wave, the housing prices increased in cities such as Gandhinagar, Ahmedabad,

Hyderabad, Thane, Mumbai, Kolkata, Pune and Bengaluru over the pre-pandemic level, and the housing prices decreased in Delhi, Noida and Ranchi. Similar trends were also visible during the second COVID-19 wave over the pre-pandemic level. The housing prices in cities such as Ahmedabad, Hyderabad, Gandhinagar and Ranchi continued to increase despite the COVID-19 shocks.

Figure 21A: Change in housing transactions in Q1 FY21 (First COVID-19 wave) and Q1 FY22 (Second COVID-19 wave) over the pre-pandemic levels of Q1 FY20

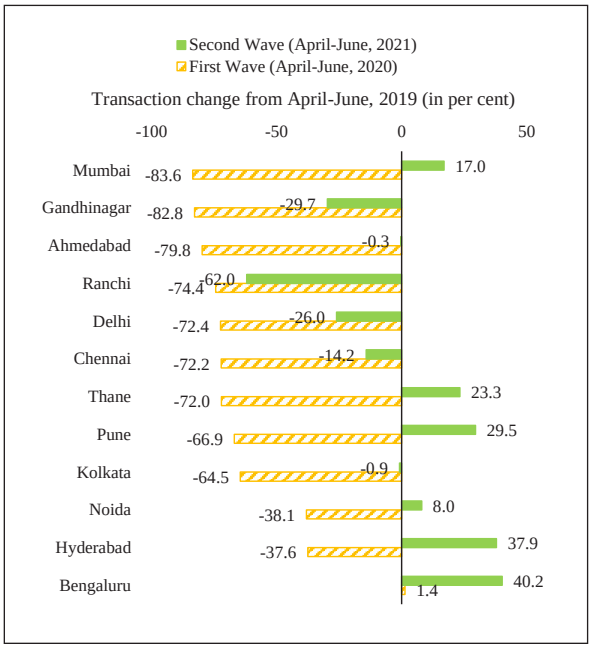
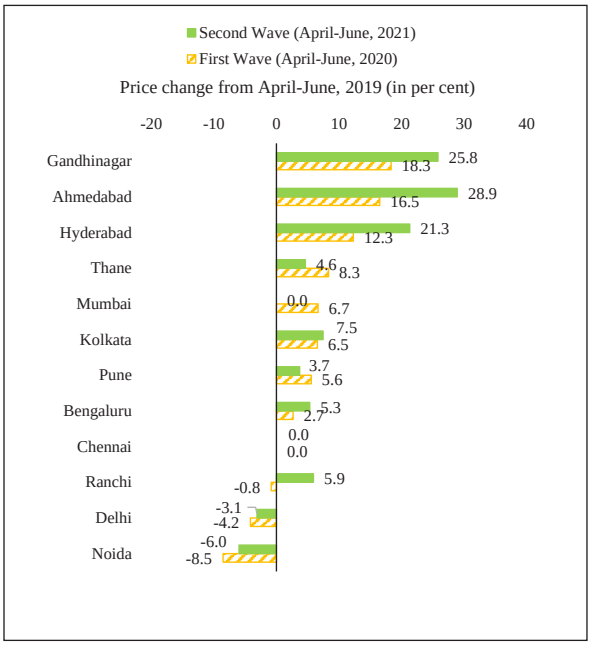


Figure 21B: Change in housing prices index in Q1 FY21 (First COVID-19 wave) and Q1 FY22 (Second COVID-19 wave) over the pre-pandemic levels of Q1 FY20

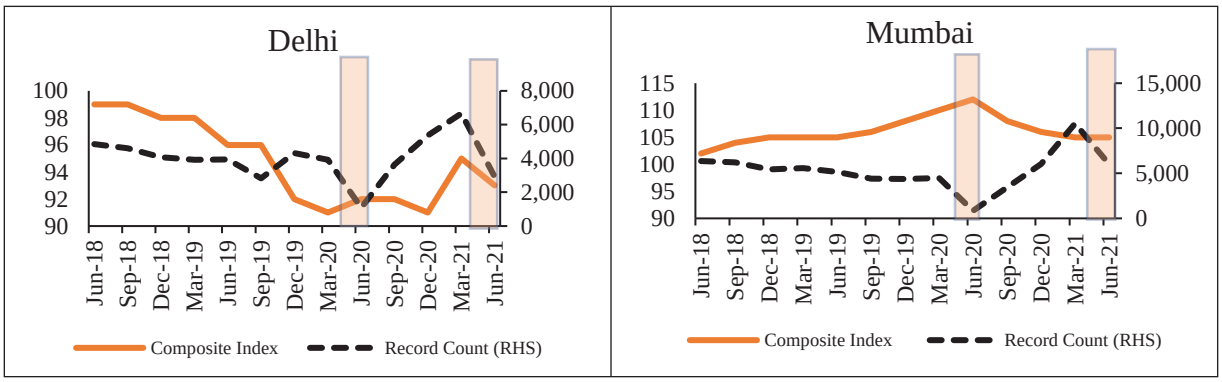


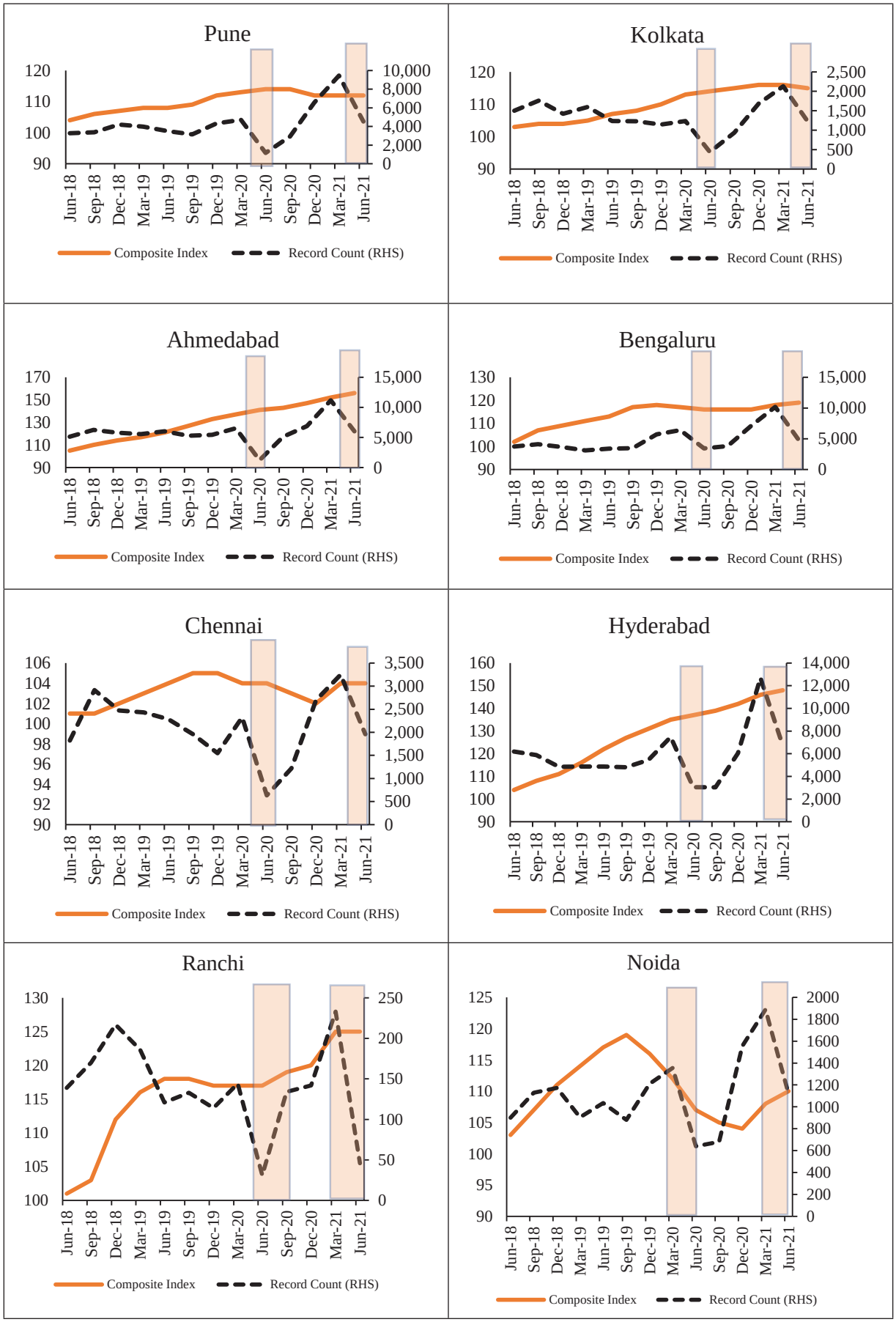
Source: NHB

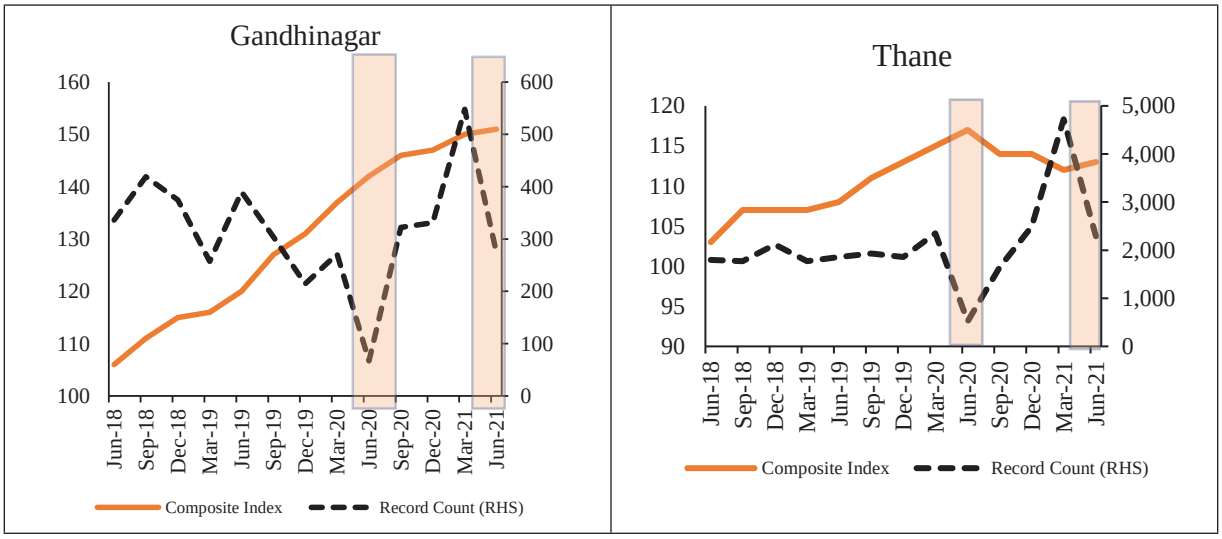
5.38 Between two COVID-19 waves, from June 2020 to April 2021, housing transactions recovered swiftly, as quarterly purchases crossed even the pre-pandemic levels for all the selected cities (Figure 22). This boost in housing demand is possibly because of pent up demand and measures taken by the government to increase affordability. The number of unsold residential units have also witnessed significant drops during the second wave of the pandemic.

Figure 23 shows carpet area prices by size of residential properties in selected cities.

Figure 22: Recovery between COVID-19 waves reflected in record count for 12 major cities

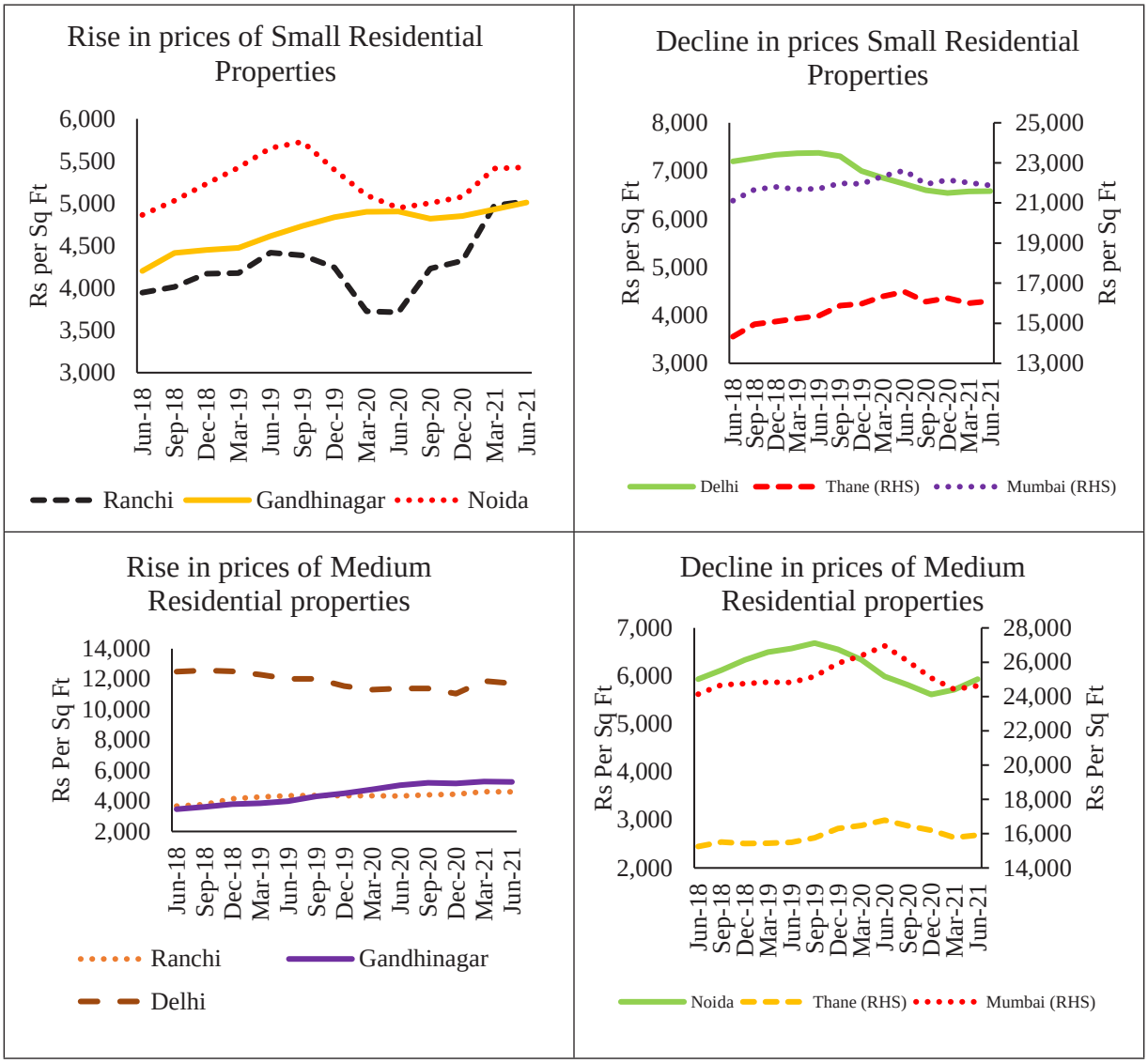


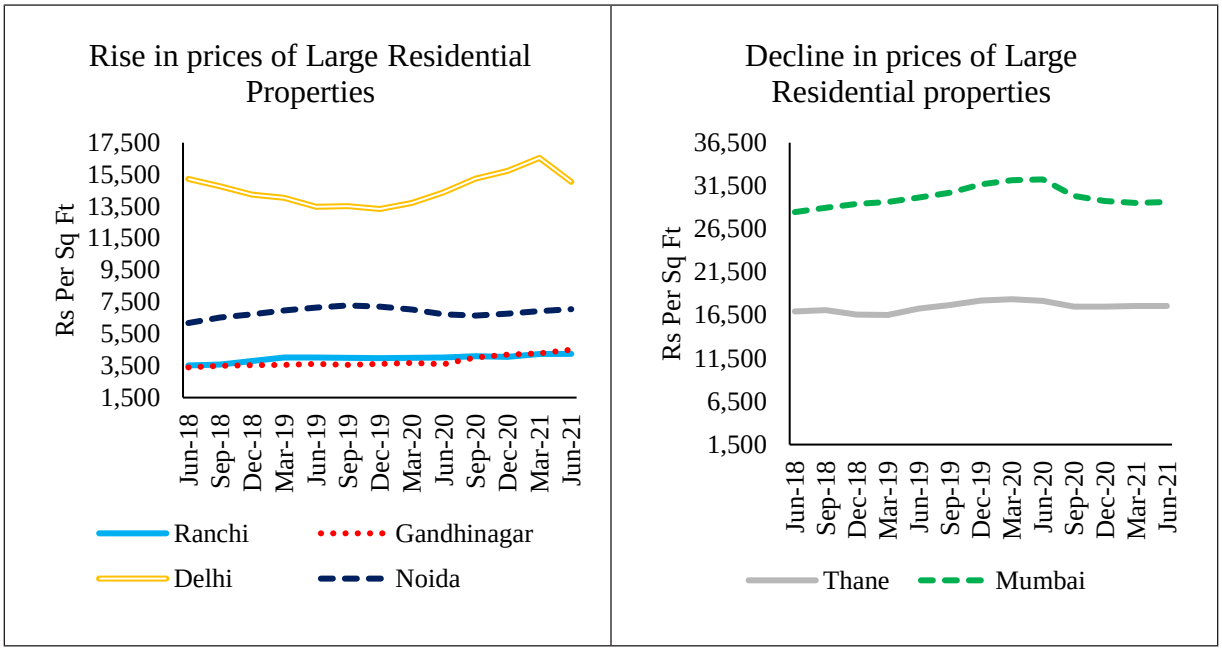

Pune
120
110
100
90
10,000
8,000
6,000
4,000
2,000
0
Jun-18
Sep-18
Dec-18
Mar-19
Jun-19
Sep-19
Dec-19
Mar-20
Jun-20
Sep-20
Dec-20
Mar-21
Jun-21
Composite Index
Record Count (RHS)
Kolkata
120
110
100
90
2,500
2,000
1,500
1,000
500
0
Jun-18
Sep-18
Dec-18
Mar-19
Jun-19
Sep-19
Dec-19
Mar-20
Jun-20
Sep-20
Dec-20
Mar-21
Jun-21
Composite Index
Record Count (RHS)
Ahmedabad
170
150
130
110
90
15,000
10,000
5,000
0
Jun-18
Sep-18
Dec-18
Mar-19
Jun-19
Sep-19
Dec-19
Mar-20
Jun-20
Sep-20
Dec-20
Mar-21
Jun-21
Composite Index
Record Count (RHS)
Bengaluru
130
120
110
100
90
15,000
10,000
5,000
0
Jun-18
Sep-18
Dec-18
Mar-19
Jun-19
Sep-19
Dec-19
Mar-20
Jun-20
Sep-20
Dec-20
Mar-21
Jun-21
Composite Index
Record Count (RHS)
Chennai
106
104
102
100
98
96
94
92
90
3,500
3,000
2,500
2,000
1,500
1,000
500
0
Jun-18
Sep-18
Dec-18
Mar-19
Jun-19
Sep-19
Dec-19
Mar-20
Jun-20
Sep-20
Dec-20
Mar-21
Jun-21
Composite Index
Record Count (RHS)
Hyderabad
160
150
140
130
120
110
100
90
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
Jun-18
Sep-18
Dec-18
Mar-19
Jun-19
Sep-19
Dec-19
Mar-20
Jun-20
Sep-20
Dec-20
Mar-21
Jun-21
Composite Index
Record Count (RHS)
Ranchi
130
125
120
115
110
105
100
250
200
150
100
50
0
Jun-18
Sep-18
Dec-18
Mar-19
Jun-19
Sep-19
Dec-19
Mar-20
Jun-20
Sep-20
Dec-20
Mar-21
Jun-21
Composite Index
Record Count (RHS)
Noida
125
120
115
110
105
100
95
90
2000
1800
1600
1400
1200
1000
800
600
400
200
0
Jun-18
Sep-18
Dec-18
Mar-19
Jun-19
Sep-19
Dec-19
Mar-20
Jun-20
Sep-20
Dec-20
Mar-21
Jun-21
Composite Index
Record Count (RHS)



Source: NHB

Figure 23: Carpet Area Prices by Size of Residential Properties





Source: NHB

Note: Small size = [<=60 sq.mt.(646 sq.ft)]; Medium= [>60 sq.mt.(646 sq.ft) and <=110 sq.mt.(1184 sq.ft)]; Large properties (>110 sq.mt.(1184 sq.ft)).

PHARMACEUTICAL PRICING

5.39 Government regulates pricing of drugs to ensure availability and accessibility of medicines at affordable prices. National Pharmaceutical Pricing Authority (NPPA), an attached office of the Department of Pharmaceuticals (DoP), is mandated to regulate the prices of drugs.

5.40 Several steps have been taken to ensure the affordability of drugs and medical devices. Ceiling prices for 355 medicines and 886 formulations were fixed for medicines under National List of Essential Medicines, 2015 (Schedule-I of Drug Price Control Order (DPCO), 2013) until 31 December 2021. Retail prices for approximately 1798 formulations were fixed under DPCO, 2013 till 31 December 2021. During the recent years, exercising extraordinary powers under DPCO, 2013 in public interest, prices of coronary stents and knee implants have also been fixed. NPPA also capped the trade margin up to 30 per cent on selected 42 anti-cancer non-schedule medicine on pilot basis in February, 2019.

COVID-19 Initiatives:

- Based on recommendations of Standing Committee on Affordable Medicines and Health Products (SCAMHP), NITI Aayog, NPPA capped the trade margin for Oxygen Concentrators at 70 per cent on Price to Distributor (PTD) level on 3rd June 2021.
- Trade margins on Pulse Oximeter, Glucometer, Blood Pressure Monitor, Nebulizer and Digital Thermometer were also capped on July 13, 2021. As a result, most of the brands of these devices have dropped prices up to 89 per cent.
- Most of drugs used for COVID management are scheduled drugs for which ceiling price has been given by NPPA. Even in the case of a few non-scheduled medicines like Remdesivir,

which are part of COVID-19 protocol, on Government intervention, MRPs of various brands of Remdesivir have been reduced voluntarily by the major manufacturers/marketers.

- Multi-pronged approach is followed to monitor and coordinate equitable distribution of Remdesivir, Tocilizumab and Amphotericin.
- The availability of key medicines is also being monitored through regular surveys being conducted at chemist shops at various locations across the country by DCG(I). The same is also being supplemented w.e.f. May 2021 through weekly availability surveys of COVID-19 management drugs conducted by the Price Monitoring and Resource Units (PMRUs).

LONG TERM PERSPECTIVE FOR MANAGEMENT OF SUPPLY SIDE FACTORS

Given the importance of supply-side factors in having a predominance in determination of inflation in India, long-term policies are likely to help.

1. **Changing Production Patterns:** Encouraging farmers to shift from cultivation of rice and wheat to pulses and oilseeds would help ensure that the country is self-reliant in pulses and oilseeds and also assist in reducing import dependence. Shift in cultivation towards pulses would also enable the government to maintain realistic buffer stocks of rice and wheat. Recently, government has been prioritizing increasing production of pulses and oilseeds through area expansion, productivity through HYVs, MSP support and procurement.

2. **Calibrated Import Policy:** Knee jerk reactions to price rise of essential commodities like pulses and edible oils through frequent import duty/tariff revisions though providing immediate relief to the consumers in the way of lower prices, send wrong signals to domestic producers and create an environment of uncertainty. A long-term consistent approach is mandated. A step in this direction has been taken by the government where five year MoUs have been signed with Myanmar for annual import of 2.5 LMT of Urad and 1 LMT of Tur, with Malawi for annual import of 1 LMT of Tur, and MoU with Mozambique for annual import of 2 LMT Tur has been extended by another five years. These MoUs will ensure predictability in the quantity of pulses being produced abroad and exported to India, thus benefiting both India and the pulse exporting country.

3. **Focus on transportation and storage infrastructure for perishable commodities:** Better storage and supply chain management is required to ensure availability in lean season and reduced wastages of horticulture and other perishable essential commodities to reduce the seasonal spikes in prices for consumers, glut for the farmers in times of good harvests due to lack of marketing infrastructure, resulting in distress sales. Effective utilisation of Agriculture Infrastructure Fund for investment in viable projects for post-harvest management infrastructure for perishable commodities can help improve agriculture infrastructure in the country. Schemes like Operation Green and Kisan Rail need to be exploited further to protect the interests of the farmers as well as the consumers .

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Sustainable Development and Climate Change

06
CHAPTER

In 2020-21, India progressed further on achieving the Sustainable Development Goals (SDGs). India's overall score on the NITI Aayog SDG India Index & Dashboard 2020-21 improved to 66 from 60 in 2019-20 and 57 in 2018-19. The number of Front Runners (scoring 65-99) increased to 22 states and UTs in 2020-21 from 10 in 2019-20. Kerala and Chandigarh were the top state and UT respectively on SDG performance in 2020-21. In North East India, 64 districts were Front Runners and 39 districts were Performers in the NITI Aayog North-Eastern Region District SDG Index 2021-22.

India has the tenth largest forest area in the world. In 2020, India ranked third globally in increasing its forest area during 2010 to 2020. The forests covered 24 per cent of India's total geographical, accounting for two per cent of the world's total forest area in 2020. India's forest cover has increased by more than three per cent during 2011 to 2021. This is mainly attributed to increase in very dense forest, which grew by 20 per cent during the period.

In August 2021, the Plastic Waste Management Amendment Rules, 2021 was notified which is aimed at phasing-out single use plastic by 2022. The draft regulation on the Extended Producer Responsibility for plastic packaging has been notified. The regulation seeks to strengthen the circular economy of plastic packaging waste, promote development of new alternatives to plastics and sustainable plastic packaging.

The chapter discusses ground water resource management and the findings indicate that states/UTs need to manage its ground water resources carefully, including recharge, and to stem over-exploitation. The compliance status of Grossly Polluting Industries (GPIs) located in the Ganga main stem and its tributaries improved from 39 per cent in 2017 to 81 per cent in 2020. The consequent reduction in effluent discharge has been from 349.13 milllions of liters per day (MLD) in 2017 to 280.20 MLD in 2020.

India had announced its first Nationally Determined Contribution (NDC) under the Paris Agreement in 2015. The Hon'ble Prime Minister of India, as a part of the national statement delivered at the 26th Conference of the Parties (COP 26) in Glasgow in November 2021, announced ambitious targets to be achieved by 2030 to enable further reduction in emissions. The need to start the one-word movement 'LIFE' which means Lifestyle For Environment urging mindful and deliberate utilization instead of mindless and destructive consumption was underlined.

In 2021, India continued exercising significant climate leadership at the international stage under the International Solar Alliance (ISA), Coalition for Disaster Resilient Infrastructure (CDRI) and Leadership Group for Industry Transition (LeadIT Group). The chapter also discusses several initiatives taken in the area of sustainable finance by the Ministry of Finance, RBI and SEBI.

INDIA'S PROGRESS ON SUSTAINABLE DEVELOPMENT GOALS

6.1 In September 2015, 193 countries including India committed to the Sustainable Development Goals (SDGs) as detailed in the UN resolution, "Transforming our world: the 2030 Agenda for Sustainable Development". The SDGs comprehensively cover social, economic and environmental dimensions and build on the Millennium Development Goals (MDGs), which covered the earlier fifteen-year period from 2000 to 2015.

6.2 India has been making strides towards achieving the social, economic and environmental goals covered under SDGs. This achievement gains further significance in the face of the considerable human and economic costs imposed by the COVID-19 pandemic, which has set countries back on their developmental goals and created serious impediments to the attainment of the SDGs, the world over.

Goal wise performance of India as a whole: NITI Aayog SDG India Index Report and Dashboard 2020-21

6.3 India's overall score on the NITI Aayog SDG India Index & Dashboard improved to 66 in 2020-21 from 60 in 2019-20 and 57 in 2018-19, showing progress in India's journey towards achieving the SDGs (see Box 1 for details about the NITI Aayog SDG India Index). Despite 2020-21 being a pandemic year, India performed well on eight of the 15 SDGs measured by the NITI Aayog SDG India Index. These included – goal 3 (good health and well-being), goal 6 (clean water and sanitation), goal 7 (affordable and clean energy), goal 10 (reduced inequalities), goal 11 (sustainable cities and communities), goal 12 (responsible consumption and production), goal 15 (life on land) and goal 16 (peace, justice, and strong institutions).

Box 1: NITI Aayog SDG India Index and Dashboard 2020-21

India's federal structure implies that states must take charge to enable progress on achieving the country's SDGs. The NITI Aayog SDG India Index is the world's first government-led sub-national measure of SDG progress. It has been developed to capture the progress of all states and union territories (UTs) in their journey towards achieving the SDGs. This index recognizes that action is required at all levels, and it is therefore based on the approach of cooperative and competitive federalism.

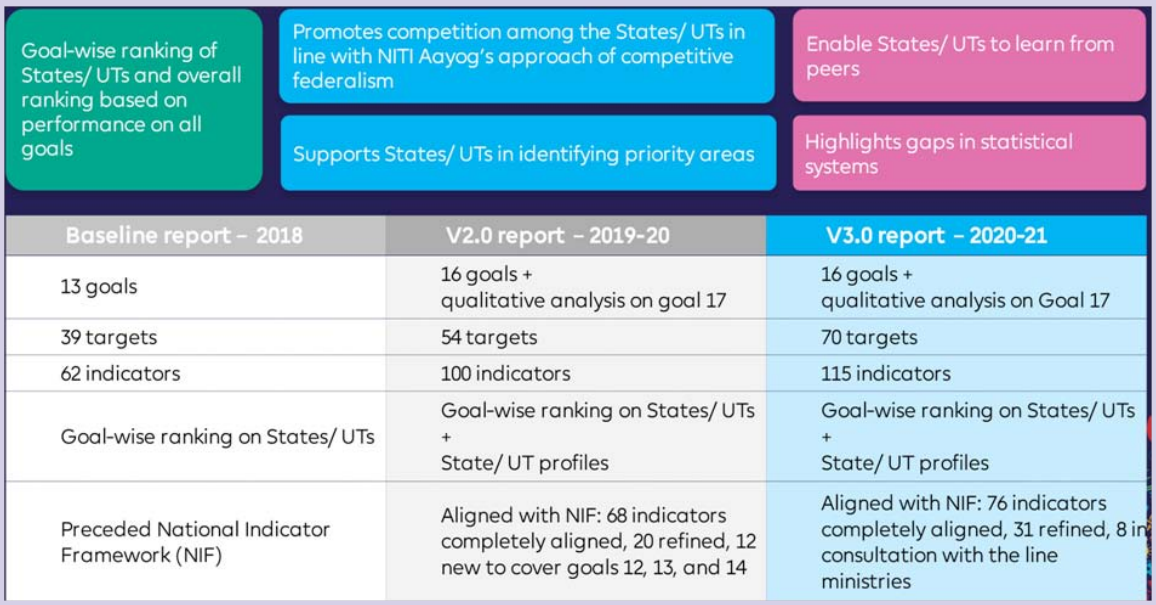
NITI Aayog has been publishing the SDG India Index annually since 2018. The third edition of the NITI Aayog SDG India Index (2020-21) computes goal-wise scores on the 16 SDGs for each state and UT, and a qualitative assessment on Goal 17, covering:

SDG 1: No Poverty
SDG 2: Zero Hunger
SDG 3: Good Health and Well-Being
SDG 4: Quality Education
SDG 5: Gender Equality
SDG 6: Clean Water and Sanitation
SDG 7: Affordable and Clean Energy
SDG 8: Decent Work and Economic Growth
SDG 9: Industry, Innovation and Infrastructure
SDG 10: Reduced Inequality
SDG 11: Sustainable Cities and Communities
SDG 12: Responsible Consumption and Production
SDG 13: Climate Action
SDG 14: Life Below Water (calculated only for the nine coastal states – Gujarat, Maharashtra, Goa, Karnataka, Kerala, Tamil Nadu, Andhra Pradesh, Odisha and West Bengal)
SDG 15: Life on Land
SDG 16: Peace, Justice and Strong Institutions
SDG 17: Global Partnerships

Overall state and UT scores are generated from goal-wise scores to measure aggregate performance of the sub-national unit based on its performance across the 16 SDGs. These scores range between 0–100, with states/UTs being categorised as Aspirant (score 0-49), Performer (score 50-64), Front Runner (65-99) and Achiever (score 100) based on their score.

The figure below depicts the evolution of the NITI Aayog SDG India Index since its first baseline report in 2018. The 2018 baseline assessment is not strictly comparable with later assessments due to its lower coverage of targets and indicators.

Evolution of the NITI Aayog SDG India Index


Goal-wise ranking of States/ UTs and overall ranking based on performance on all goals
Promotes competition among the States/ UTs in line with NITI Aayog's approach of competitive federalism
Enable States/ UTs to learn from peers
Supports States/ UTs in identifying priority areas
Highlights gaps in statistical systems

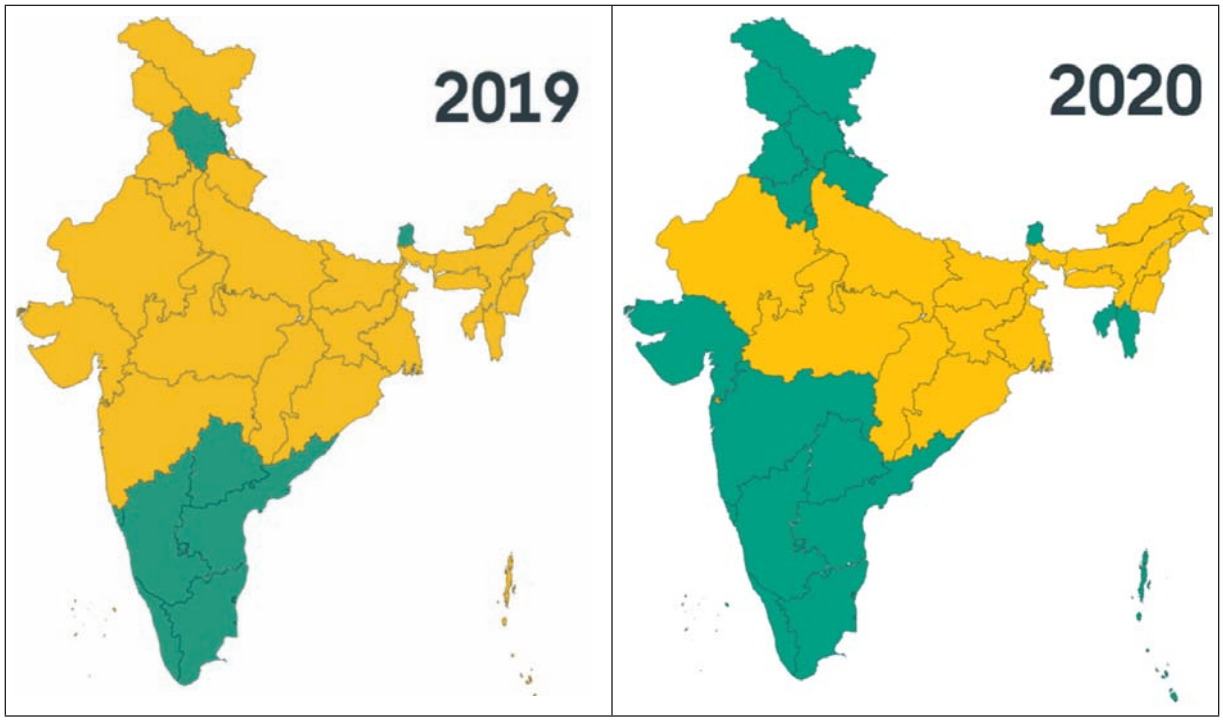
Baseline report – 2018	V2.0 report – 2019-20	V3.0 report – 2020-21
13 goals	16 goals + qualitative analysis on goal 17	16 goals + qualitative analysis on Goal 17
39 targets	54 targets	70 targets
62 indicators	100 indicators	115 indicators
Goal-wise ranking on States/ UTs	Goal-wise ranking on States/ UTs + State/ UT profiles	Goal-wise ranking on States/ UTs + State/ UT profiles
Preceded National Indicator Framework (NIF)	Aligned with NIF: 68 indicators completely aligned, 20 refined, 12 new to cover goals 12, 13, and 14	Aligned with NIF: 76 indicators completely aligned, 31 refined, 8 in consultation with the line ministries

Source: NITI Aayog
Note: Ministry of Statistics and Programme Implementation (MoSPI) has developed the National Indicator Framework (NIF) comprising 306 statistical indicators for monitoring of SDGs at the national level

Performance of States and UTs on the NITI Aayog SDG India Index, 2021

6.4 Figure 1 shows that the number of Front Runners (scoring 65-99) increased to 22 states and UTs in 2020-21 from 10 in 2019-20. All remaining states and UTs were Performers (scoring 50-64). Amongst states, additions to the Front Runner category in 2020-21 included Uttarakhand, Gujarat, Maharashtra, Mizoram, Punjab, Haryana and Tripura. Amongst UTs, additions to the Front Runner category included Andaman and Nicobar Islands, Delhi, Jammu and Kashmir, Ladakh and Lakshadweep.

Figure 1: Performance of States/UTs on the NITI Aayog SDG India Index (2019 and 2020)

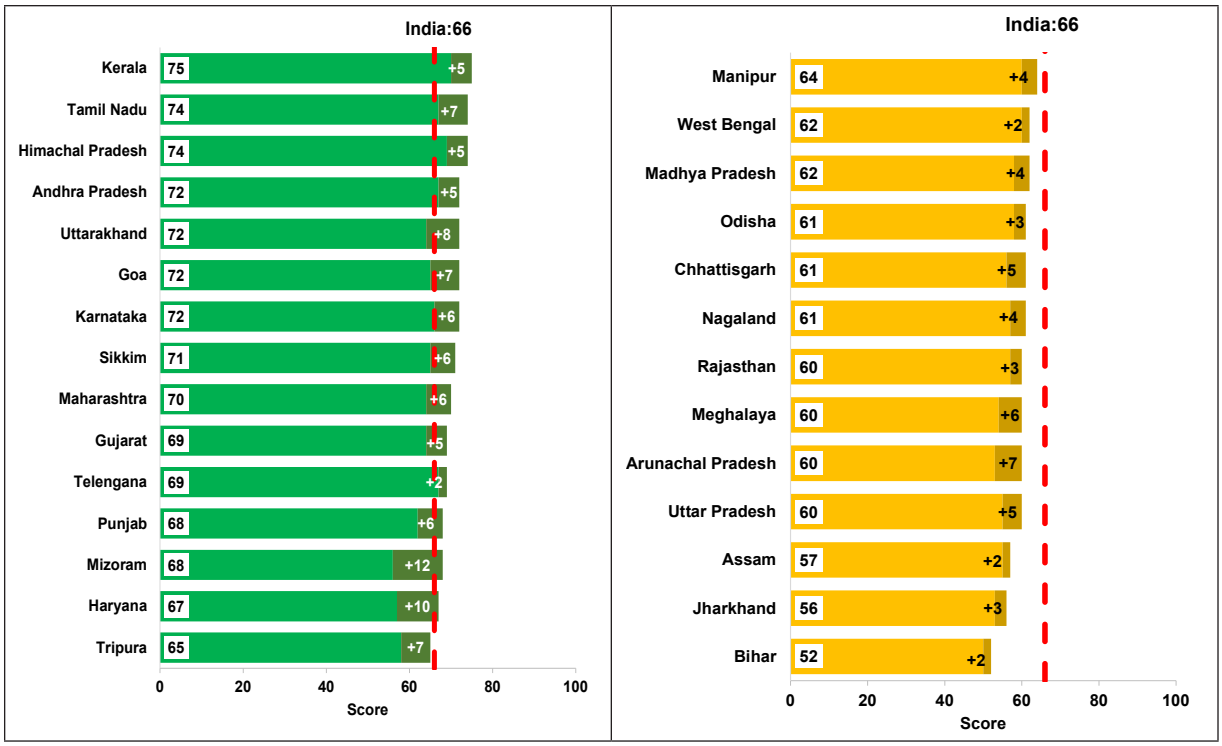


Source: NITI Aayog
Note: Yellow indicates Performer (Score 50-64), Green indicates Front Runner (Score 65-99)

6.5 Figure 2 shows the scores achieved by states on the NITI Aayog SDG India Index 2020-21, and change in score from 2019-20. In 2020-21, states achieved scores between 52-75 and UTs scored between 62-79, as against scores of 50-70 for states and 59-70 for UTs in 2019-20. All states have improved their overall scores by 1-12 points. Kerala (score of 75) retained its top rank amongst states in 2020-21. Tamil Nadu and Himachal Pradesh ranked second while Goa, Uttarakhand, Karnataka and Andhra Pradesh ranked fourth. Mizoram, Haryana, and Uttarakhand are the top gainers in 2020-21, in terms of improvement in score from 2019, with an increase of 12, 10 and 8 points respectively.

Figure 2: Performance of States on the NITI Aayog SDG India Index 2020-21

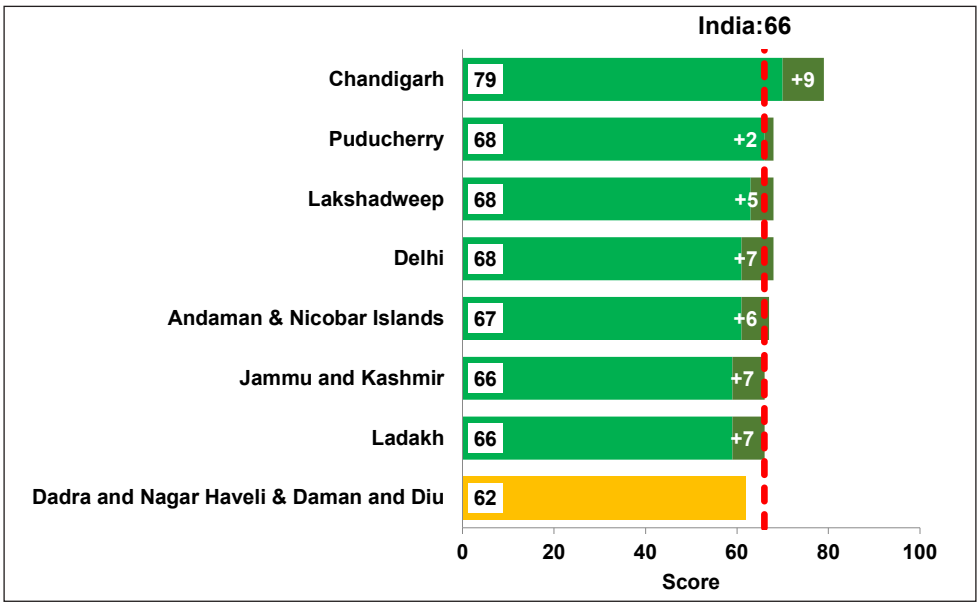
(i) Front Runners (ii) Performers



Source: NITI Aayog

6.6 Figure 3 shows the performance of UTs on the NITI Aayog SDG India Index 2020-21, and change in score from 2019-20. Chandigarh (score of 79) retained its top rank amongst UTs in 2020-21 while Puducherry, Lakshadweep and Delhi (score of 68) ranked second. Puducherry made the highest gain (nine points) in 2020-21, followed by Delhi, Jammu and Kashmir and Ladakh (seven points each).

Figure 3: Performance of UTs on the NITI Aayog SDG India Index 2020-21



Source: NITI Aayog

Note: Yellow indicates Performer (Score 50-64); Green indicates Front Runner (Score 65-99)

Table 1: Goal-wise Performance of States/UTs on the NITI Aayog SDG India Index 2020-21

States	SDG7	SDG6	SDG12	SDG16	SDG11	SDG3	SDG10	SDG1	SDG15	SDG8	SDG4	SDG2	SDG13	SDG5	SDG9	Composite SDG
Kerala	100	89	65	80	75	72	69	83	77	62	80	80	69	63	60	75
Himachal Pradesh	100	85	77	73	79	78	78	80	68	78	74	52	62	62	61	74
Tamil Nadu	100	87	78	71	79	81	74	86	63	71	69	66	61	59	71	74
Andhra Pradesh	100	92	84	77	78	77	74	81	69	67	50	52	63	58	52	72
Goa	100	100	47	63	89	72	75	83	59	76	71	78	44	55	68	72
Karnataka	100	85	89	76	78	78	67	68	67	66	64	53	62	57	64	72
Uttarakhand	100	85	82	86	76	77	77	74	64	63	70	61	60	46	56	72
Sikkim	100	89	76	72	85	62	61	80	73	71	58	69	65	58	52	71
Maharashtra	100	90	82	69	87	83	71	66	52	62	64	44	58	51	66	70
Gujarat	94	93	50	82	87	86	64	66	61	64	52	46	67	49	72	69
Telangana	100	96	73	71	76	67	67	68	81	73	63	50	43	41	59	69
Mizoram	100	85	87	81	61	79	64	80	48	51	60	72	66	54	32	68
Punjab	100	66	71	76	91	77	68	69	48	57	60	73	51	45	69	68
Haryana	100	80	77	71	81	72	68	69	48	59	64	58	51	43	66	67
Tripura	83	82	99	80	67	67	85	82	69	57	42	52	41	39	35	65
Manipur	96	87	89	69	65	68	70	60	60	36	63	64	57	41	35	64
Madhya Pradesh	86	88	78	66	81	62	51	44	84	60	45	43	49	55	37	62
West Bengal	98	81	79	81	45	76	71	59	53	57	54	46	39	41	53	62
Chhattisgarh	78	89	64	71	78	60	72	49	65	64	55	37	38	64	36	61
Nagaland	69	87	91	79	48	61	46	73	63	48	39	64	69	48	30	61
Odisha	80	86	73	59	70	67	66	41	83	48	45	42	70	46	46	61
Arunachal Pradesh	85	67	77	64	39	64	69	54	93	50	41	66	58	37	31	60
Meghalaya	50	75	73	72	51	70	88	77	64	63	48	37	62	51	25	60
Rajasthan	100	54	74	73	81	70	45	63	43	57	60	53	49	39	45	60
Uttar Pradesh	100	83	79	79	77	60	41	44	61	53	51	41	39	50	42	60
Assam	98	64	66	62	55	59	65	51	78	50	43	41	53	25	39	57
Jharkhand	77	83	55	70	71	74	65	36	71	54	45	19	25	51	37	56
Bihar	78	91	59	73	67	66	48	32	62	50	29	31	16	48	24	52
UNION TERRITORIES	SDG7	SDG6	SDG12	SDG16	SDG11	SDG3	SDG10	SDG1	SDG15	SDG8	SDG4	SDG2	SDG13	SDG5	SDG9	Composite SDG
Chandigarh	100	99	78	73	98	74	100	75	85	70	79	97	61	58	45	79
Delhi	100	61	50	62	65	90	72	81	81	65	75	63	55	33	66	68
Lakshadweep	83	100	63	77	56	78	75	61	67	62	62	74	68	58	40	68
Puducherry	98	91	66	86	76	70	62	75	50	68	70	59	23	66	59	68
Andaman and Nicobar Islands	100	87	73	46	85	68	67	71	72	59	57	45	77	68	23	67
Jammu and Kashmir	100	88	95	74	57	70	65	69	52	47	49	71	63	46	42	66
Ladakh	100	84	95	74	57	70	65	79	27	59	49	71	66	46	48	66
Dadra and Nagar Haveli & Daman and Diu	71	95	62	75	89	80	66	65	62	57	56	27	18	53	47	62
India	92	83	74	74	79	74	67	60	66	61	57	47	54	48	55	66
Target	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Aspirant (0-49) Performer (50-64) Front Runner (65-99) Achiever (100)

The heatmap displays the performance of each State/UT on each of the Goals. The States/UTs are arranged in a descending order according to their composite scores. The State/UT with the highest composite score is in the top of their respective list while the one with the lowest score is at the bottom of the list. The columns are arranged according to the average performance of all States/UTs in a certain Goal, with the Goal where all States/UTs have on an average performed well (i.e. Goal 7) being in the left-most column and the Goal where all States/UTs have on an average performed relatively poorly (i.e. Goal 9) being in the right-most column (before the composite score).

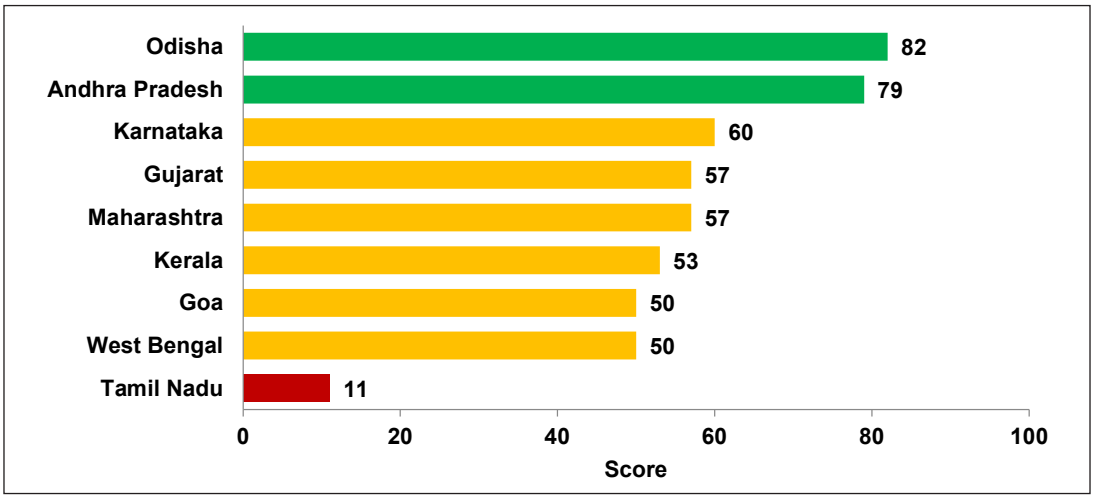
Source: NITI Aayog SDG India Index and Dashboard 2020-21

Note: SDG 1: No Poverty; SDG 2: Zero Hunger; SDG 3: Good Health and Well-Being; SDG 4: Quality Education; SDG 5: Gender Equality; SDG 6: Clean Water and Sanitation; SDG 7: Affordable and Clean Energy; SDG 8: Decent Work and Economic Growth; SDG 9: Industry, Innovation and Infrastructure; SDG 10: Reduced Inequality; SDG 11: Sustainable Cities and Communities; SDG 12: Responsible Consumption and Production; SDG 13: Climate Action; SDG 15: Life on Land; SDG 16: Peace, Justice and Strong Institutions.

6.7 Table 1 shows the performance of states and UTs on 15 SDGs in the NITI Aayog SDG India Index 2020-21. Within goals, goal 7 has been achieved (score: 100) by 15 states and 5 UTs, goal 6 has been achieved by one state (Goa) and one UT (Lakshadweep), and goal 10 has been achieved by one UT (Chandigarh). Amongst states, goal 6 has the highest number of Front Runners (25 states), goal 8 has the highest number of Performers (18 states), and goal 5 and goal 9 have the highest number of Aspirants (14 states each). All UTs are Front Runners in goal 3, goal 8 has the highest number of Performers and goal 9 has the highest number of Aspirants.

6.8 Figure 4 shows the performance of nine coastal states on SDG 14 (life below water) on the NITI Aayog SDG India Index 2020-21. Odisha and Andhra Pradesh are Front Runners, followed by six Performers – Karnataka, Gujarat, Maharashtra, Kerala, Goa and West Bengal. Tamil Nadu is an Aspirant, and has the lowest score on SDG 14 amongst coastal states.

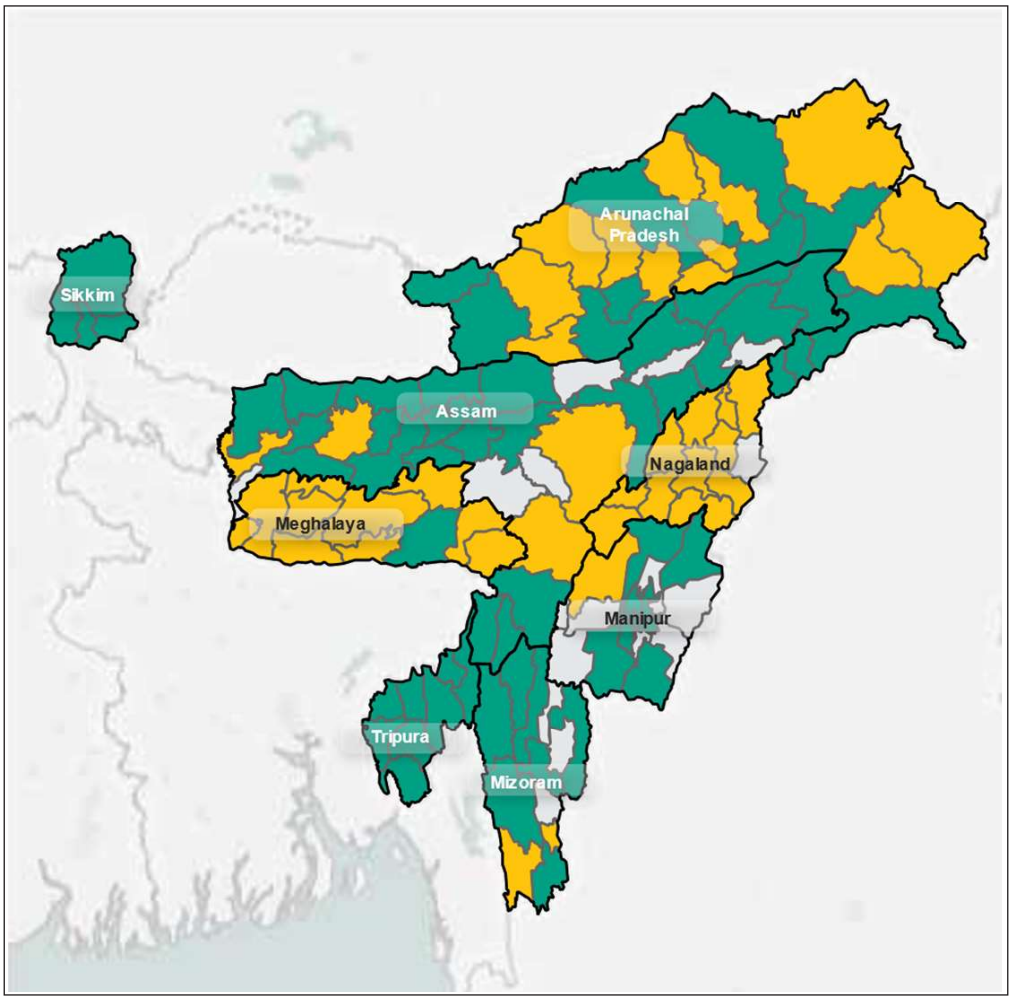
Figure 4: Performance of Coastal States on SDG 14 on NITI Aayog SDG India Index 2020-21



Source: NITI Aayog SDG India Index and Dashboard 2020-21
Note: SDG 14: Life Below Water. Red indicates Aspirant (Score 0-49), Yellow indicates Performer (Score 50-64), Green indicates Front Runner (Score 65-99);

6.9 Special attention is being paid to achievement of SDGs in the North-East region, with a North-Eastern Region (NER) District SDG Index 2021-22 developed by NITI Aayog. The index is constructed from 84 indicators and covers 15 global goals, 50 SDG targets and 103 districts in the eight states of the North Eastern Region. The index will facilitate in identifying crucial gaps and inform interventions to fast-track progress towards achieving the SDGs in the region. Figure 5 shows the district-wise overall performance in the NITI Aayog NER District SDG Index 2021-22. The score for the 103 districts range from 75.87 in East Sikkim (Sikkim) to 53.00 in Kiphire (Nagaland). There are 64 districts in the Front Runner category and 39 districts in the Performer category. All districts of Sikkim and Tripura fall in the Front Runner category.

Figure 5: District-wise overall performance on the NITI Aayog NER District SDG Index 2021-22



Source: NITI Aayog
Note: Yellow indicates Performer (Score 50-64), Green indicates Front Runner (Score 65-99). Uncoloured areas are districts that have not been covered.

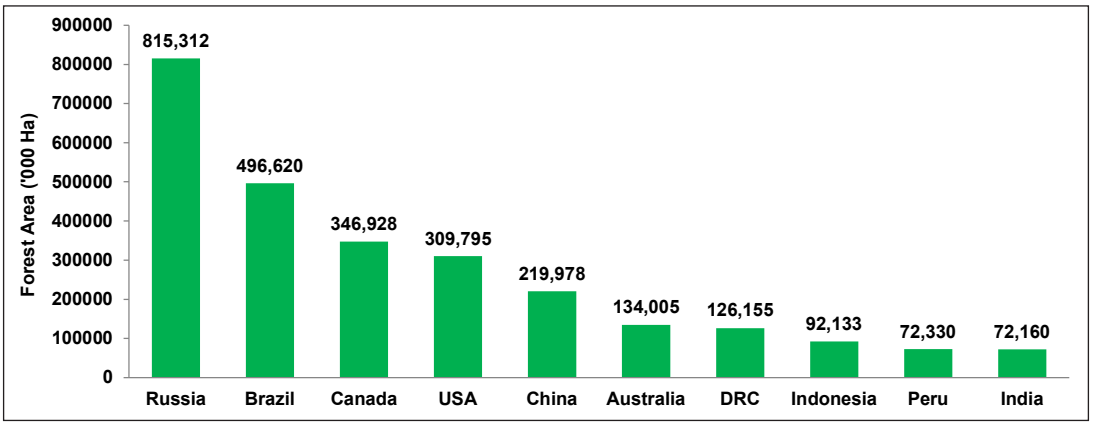
STATE OF THE ENVIRONMENT

6.10 Sustainable development requires balancing of rapid economic growth with conservation, ecological security and environmental sustainability. This section explores state of the environment across land, water and air.

Land Forests

6.11 Forest Area refers to area recorded as forest in government records and is also called "recorded forest area". Figure 6 shows that Russia, Brazil, Canada, USA and China were the top five largest countries by forest area in 2020, while India was the tenth largest country by forest area.

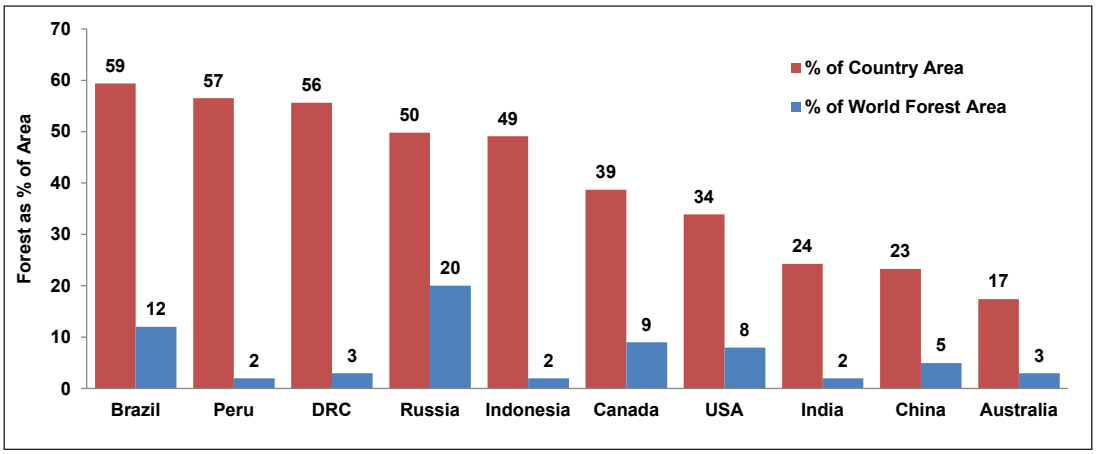
Figure 6: Top Ten Countries by Forest Area in 2020



Source: India State of Forest Report 2021
Note: DRC: Democratic Republic of the Congo

6.12 Forests covered 24 per cent of India's total geographical area accounting for two per cent of the world's total forest area in 2020. Figure 7 shows the top ten countries by forest area as per cent of the total geographical area of the country and per cent of world forest area. The top 10 countries account for 66 per cent of the world's forest area. Of these countries, Brazil (59 per cent), Peru (57 per cent), Democratic Republic of Congo (56 per cent) and Russia (50 per cent) have half or more of their total geographical area under forests.

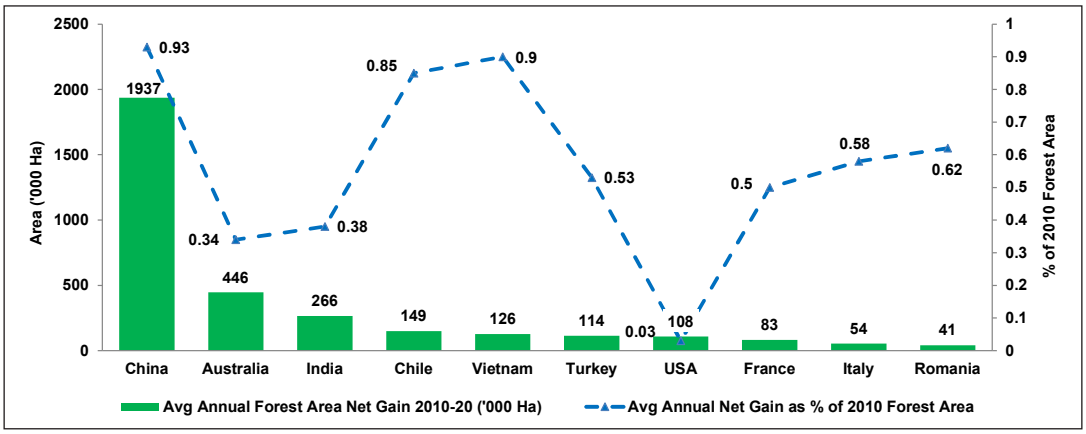
Figure 7: Top Ten Countries by Forest Area in 2020 w.r.t Country and World Forest Area



Source: India State of Forest Report 2021
Note: DRC: Democratic Republic of the Congo

6.13 India has increased its forest area significantly over the past decade. It ranks third globally in average annual net gain in forest area between 2010 to 2020, adding an average 2,66,000 ha of additional forest area every year during the period, or adding approximately 0.38 per cent of the 2010 forest area every year between 2010 to 2020 (Figure 8).

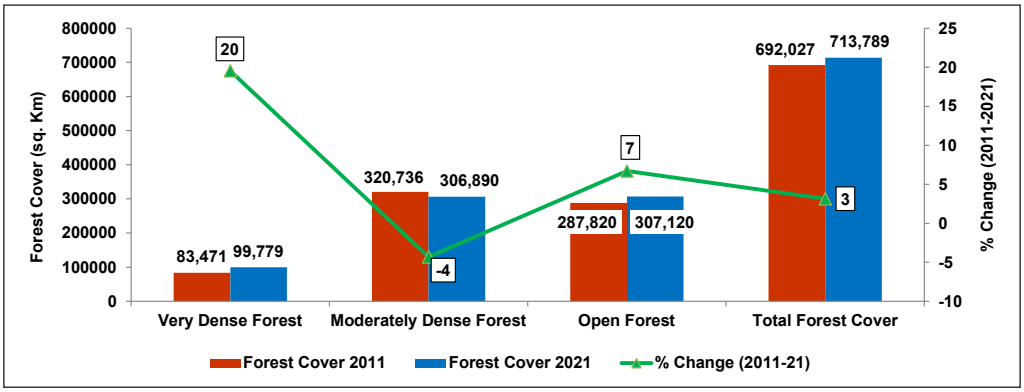
Figure 8: Top Ten Countries by Average Annual Net Gain in Forest Area (2010-20)



Source: India State of Forest Report 2021

6.14 Forest cover comprises all lands, more than one hectare in area, with a tree canopy density of more than 10 per cent, irrespective of ownership and legal status. Such lands may not necessarily be a recorded forest area, and also include orchards, bamboo and palm plantations. Figure 9 shows that India's total forest cover was 7,13,789 sq km in 2021 reflecting an increase of 3.14 per cent in the forest cover over 2011, from 21.05 per cent of the country's geographical area in 2011 to 21.71 per cent in 2021. This increase in total forest cover is mainly attributed to increase in very dense forest (all lands with tree canopy density of 70 per cent and above), which rose by 19.54 per cent between 2011 and 2021. Open forest (all lands with tree canopy density between 10-40 per cent) also improved by 6.71 per cent, while moderately dense forest (all lands with tree canopy density between 40-70 per cent) declined by 4.32 per cent between 2011 and 2021.

Figure 9: Forest Cover of India (2011 and 2021)

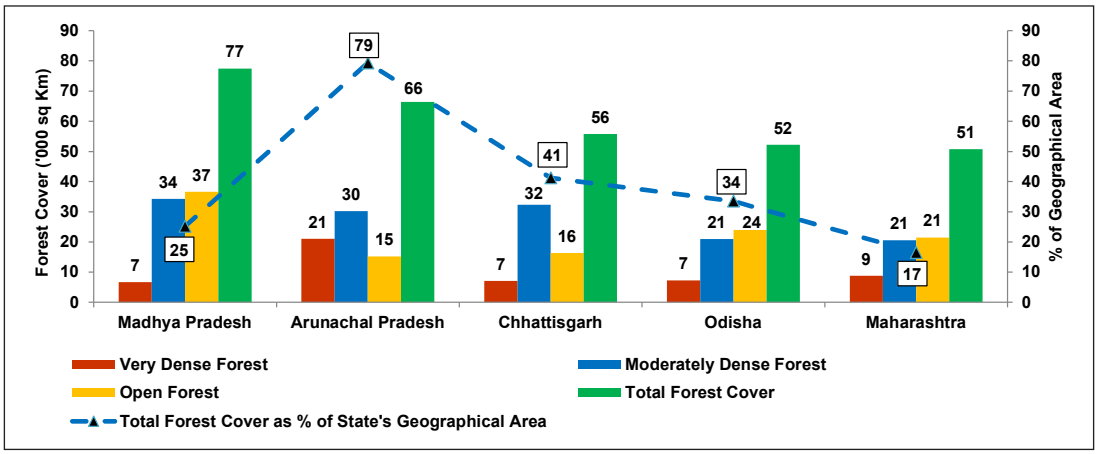


Source: India State of Forest Report 2021 and 2011

Note: Very dense forest: All lands with tree canopy density of 70 per cent and above); Moderately dense forest: All lands with tree canopy density between 40-70 per cent; and Open forest: All lands with tree canopy density between 10-40 per cent

6.15 Amongst states, Madhya Pradesh (11 per cent of India's total forest cover) had the largest forest cover in India in 2021, followed by Arunachal Pradesh (9 per cent), Chhattisgarh (8 per cent), Odisha (7 per cent) and Maharashtra (7 per cent). Figure 10 shows the composition of very dense forest, moderately dense forest and open forest in these five states as well as the per cent of states' geographical area under forest cover in 2021.

Figure 10: Top Five States in India by Forest Cover, 2021

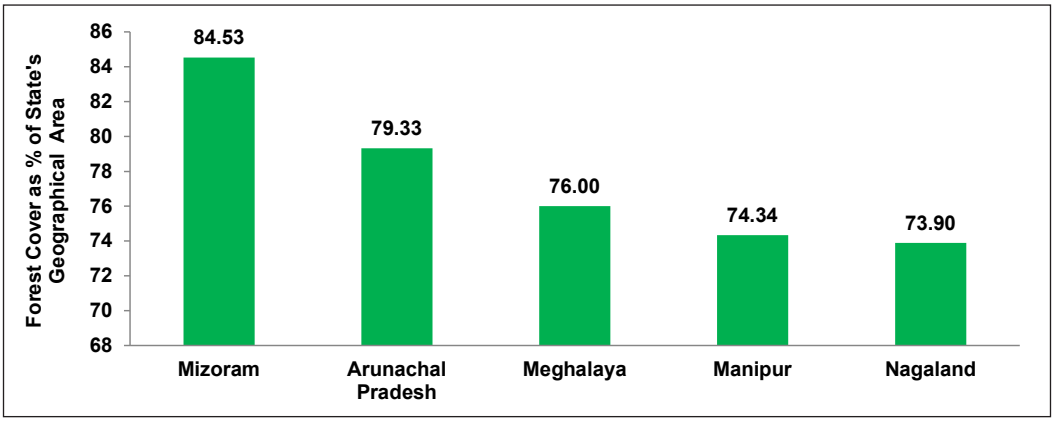


Source: India State of Forest Report 2021

Note: Very dense forest: All lands with tree canopy density of 70 per cent and above); Moderately dense forest: All lands with tree canopy density between 40-70 per cent; and Open forest: All lands with tree canopy density between 10-40 per cent

6.16 Mizoram (85 per cent), Arunachal Pradesh (79 per cent), Meghalaya (76 per cent), Manipur (74 per cent) and Nagaland (74 per cent) were the top five states in terms of highest per cent of forest cover w.r.t. total geographical area of the state in 2021 (Figure 11).

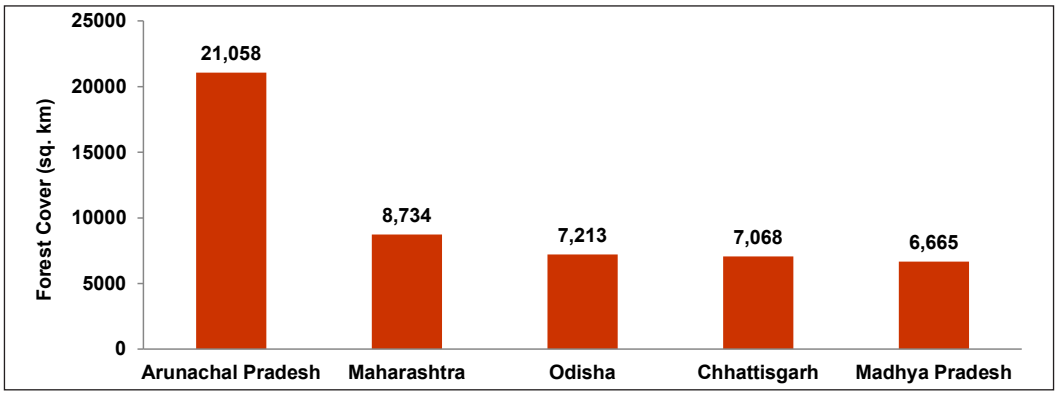
Figure 11: Top Five States by per cent of State Geographical Area under Forest Cover, 2021



Source: India State of Forest Report 2021

6.17 Figure 12 shows the top five states in terms of very dense forest in 2021. Arunachal Pradesh accounted for 21 per cent of India's very dense forest in 2021, followed by Maharashtra (9 per cent), Odisha (7 per cent), Chhatisgarh (7 per cent) and Madhya Pradesh (7 per cent).

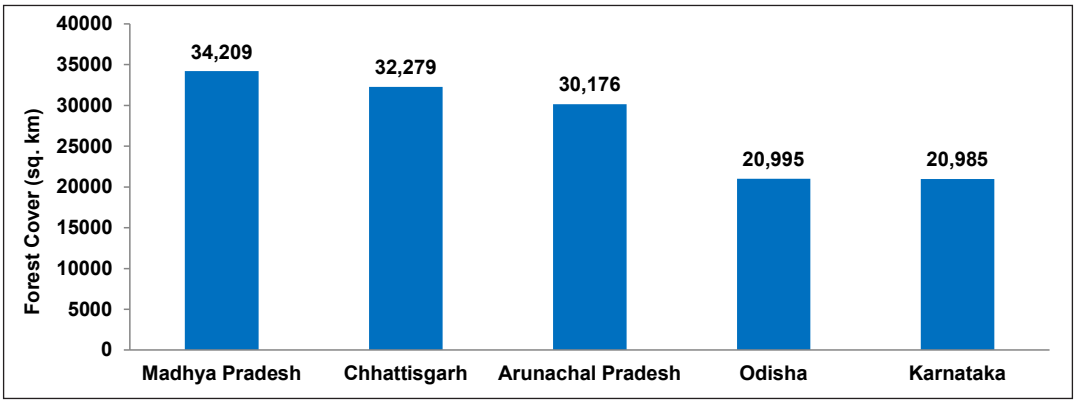
Figure 12: Top Five States by Very Dense Forest, 2021



Source: India State of Forest Report 2021

6.18 Figure 13 shows the top five states in terms of moderately dense forest in 2021. Madhya Pradesh and Chhattisgarh accounted for 11 per cent of India's moderately dense forest in 2021, followed by Arunachal Pradesh (10 per cent), Odisha (7 per cent) and Karnataka (7 per cent).

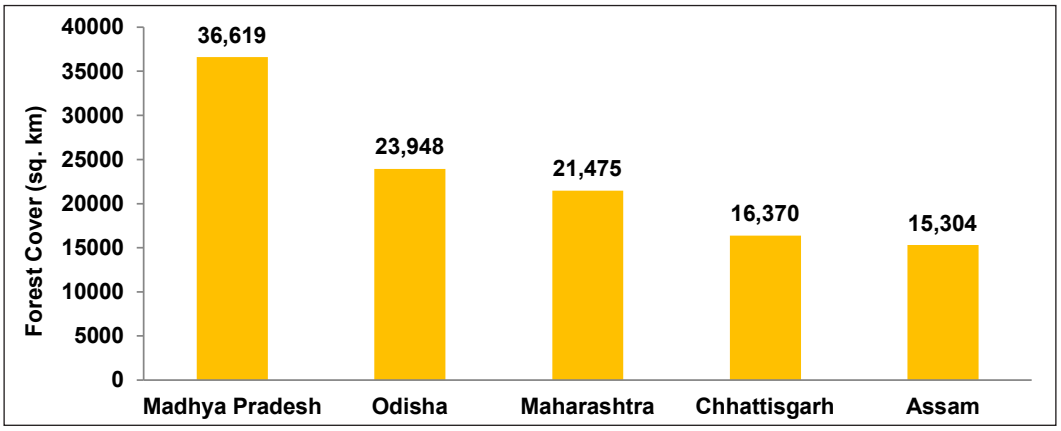
Figure 13: Top Five States by Moderately Dense Forest, 2021



Source: India State of Forest Report 2021

6.19 Figure 14 shows the top five states in terms of open forest in 2021. Madhya Pradesh accounted for 12 per cent of India's moderately dense forest in 2021, followed by Odisha (8 per cent), Maharashtra (7 per cent), Chhattisgarh (5 per cent) and Assam (5 per cent).

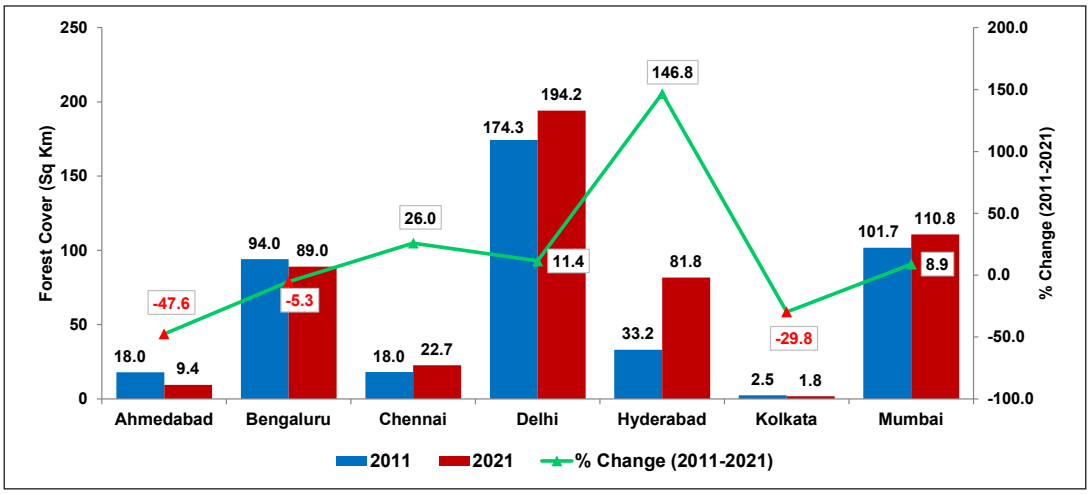
Figure 14: Top Five States by Open Forest Cover, 2021



Source: India State of Forest Report 2021

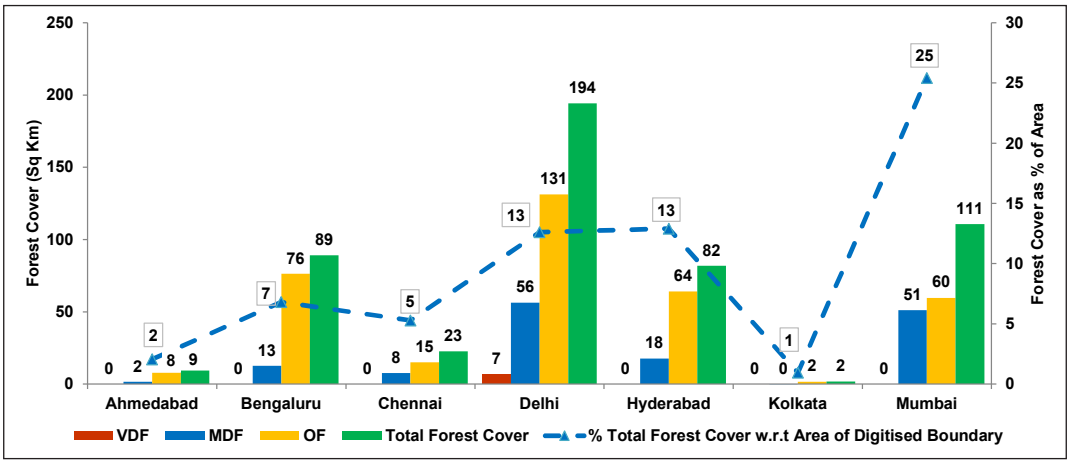
6.20 Figure 15 shows the forest cover in seven major cities – Ahmedabad, Bengaluru, Chennai, Delhi, Hyderabad, Kolkata and Mumbai, in 2011 and 2021. Figure 16 shows the composition of forest cover in seven major cities – Ahmedabad, Bengaluru, Chennai, Delhi, Hyderabad, Kolkata and Mumbai, in 2021.The total forest cover in these seven major cities in 2021 was 509.72 sq km, which was 10.21 per cent of the total geographical area of these cities, and 0.07 per cent of India's forest area.

Figure 15: Forest Cover in Seven Major Cities (2011 and 2021)



Source: India State of Forest Report 2021

Figure 16: Composition of Forest Cover in Seven Major Cities, 2021



Source: India State of Forest Report 2021
Note: VDF: Very Dense Forest; MDF: Moderately Dense Forest; OF: Open Forest

Plastic Waste Management and Elimination of Identified Single Use Plastics

6.21 India is committed to mitigate pollution caused by littered single use plastics. In 2018, the Hon'ble Prime Minister announced that India would phase-out single use plastic by 2022. The Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 as amended regulate the import of identified plastic waste into the country by SEZ and EOUs. The regulation of import of plastic waste prevents dumping of plastic waste by other countries in the country and allows for recycling of plastic waste generated in the country.

6.22 India piloted a resolution on "Addressing Single Use Plastic Product Pollution" which was adopted by the Fourth United Nations Environment Assembly held in 2019. The resolution recognizes the need for the global community to act on the single use plastic products pollution. The adoption of this resolution was a significant step.

6.23 The following domestic regulatory actions have been taken in 2021:

i. In August 2021, the Ministry of Environment, Forest and Climate Change, Government of India, notified the Plastic Waste Management Amendment Rules, 2021 prohibiting identified single use plastic items, which have low utility and high littering potential, by 2022. The manufacture, import, stocking, distribution, sale and use of identified single-use plastic, including polystyrene and expanded polystyrene, commodities shall be prohibited with effect from the July 1, 2022.

ii. In order to stop littering due to light-weight plastic carry bags, the thickness of plastic carry bags has been increased from fifty microns to seventy five microns with effect from September 30, 2021 and to one hundred and twenty microns with effect from December 31, 2022. Increased thickness of plastic bags will also allow reuse.

iii. The plastic packaging waste, which is not covered under the phase out of identified single use plastic items, shall be collected and managed in an environmentally sustainable way through the Extended Producer Responsibility of the Producer, Importer and Brand Owner (PIBO), as per Plastic Waste Management Rules, 2016.

iv. For effective implementation of Extended Producer Responsibility the Guidelines for Extended Producer Responsibility being brought out have been given legal force through Plastic Waste Management Amendment Rules, 2021.

v. In October 2021, the Ministry of Environment, Forest and Climate Change notified the draft Regulations on the Extended Producer Responsibility for plastic packaging under Plastic Waste Management Rules, 2016, as amended from time to time, in the Gazette of India vide GSR No. 722 (E) for public consultation. The regulation proposes to mandate reuse, minimum level of recycling of plastic packaging waste, use of recycled plastic content, and environmentally sound management of plastic waste. It also seeks to strengthen the circular economy of plastic packaging waste, promote development of new alternatives to plastics and sustainable plastic packaging.

6.24 The waste management infrastructure in the States/UTs is also being strengthened through the Swachh Bharat Mission. All States/UTs have been requested to constitute a Special Task Force for elimination of single use plastics and effective implementation of Plastic Waste Management Rules, 2016. In addition, State /UT Governments and concerned Central Ministries/ Departments have also been requested to develop a comprehensive action plan for elimination of single use plastics and effective implementation of Plastic Waste Management Rules, 2016, and its implementation in a time bound manner. A National Level Taskforce has been constituted by the Ministry of Environment, Forest and Climate Change for taking coordinated efforts to eliminate identified single use plastic items and effective implementation of Plastic Waste

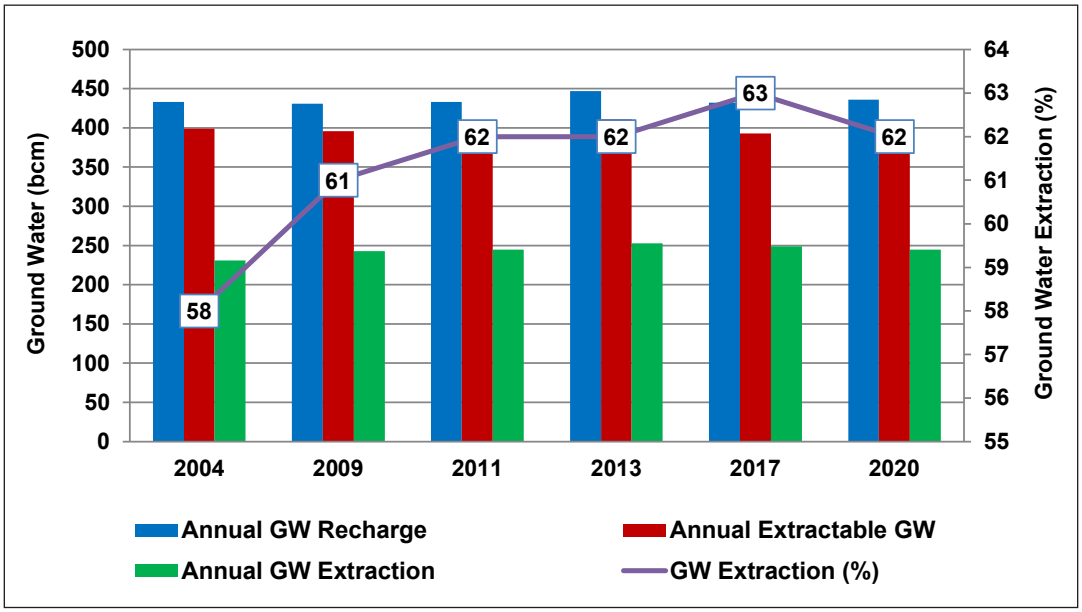
Management Rules, 2016. All States/UTs and concerned central ministries are members of the National Task Force. The first meeting of the National Task Force was held on 31st August 2021. The Government has also been taking measures for awareness generation towards elimination of single use plastics and effective implementation of Plastic Waste Management Rules, 2016.

Water

Ground Water

6.25 Ground water is a crucial resource for India's agriculture, industry and drinking water security. However, unsustainable extraction, i.e. extraction in excess of, or close to, annual recharge, can severely compromise ground water resources.

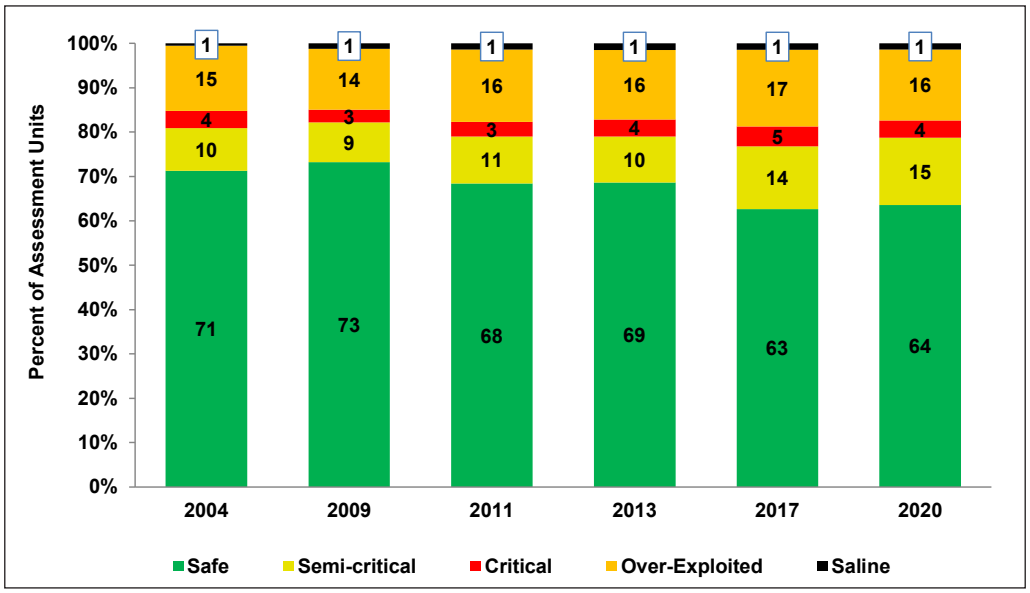
Figure 17: Ground Water Resource Assessments (2004-2020)



Source: National Compilation on Dynamic Ground Water Resources of India, 2020

6.26 Ground Water Resources Assessment of states/UTs is carried out jointly by state groundwater/ nodal departments and Central Ground Water Board at periodic intervals, and the Dynamic Ground Water Resources of India is published by compiling the state/UT wise ground water resources assessed. Such ground water assessments have been undertaken in 2004, 2009, 2011, 2013, 2017 and 2020. Figure 17 shows the annual ground water recharge, annual extractable ground water resources, annual ground water extraction and the stage of total ground water extraction (ratio of annual ground water extraction and annual extractable resources i.e. utilization vs availability expressed in per cent) of India during 2004-2020. It may be seen that the annual ground water recharge has remained similar during 2004-2020 (except in 2013). Overall, the annual ground water extraction has been in the range of 58-63 per cent during this period.

Figure 18: Categorization of Ground Water Resource Assessment Units (2004-2020)

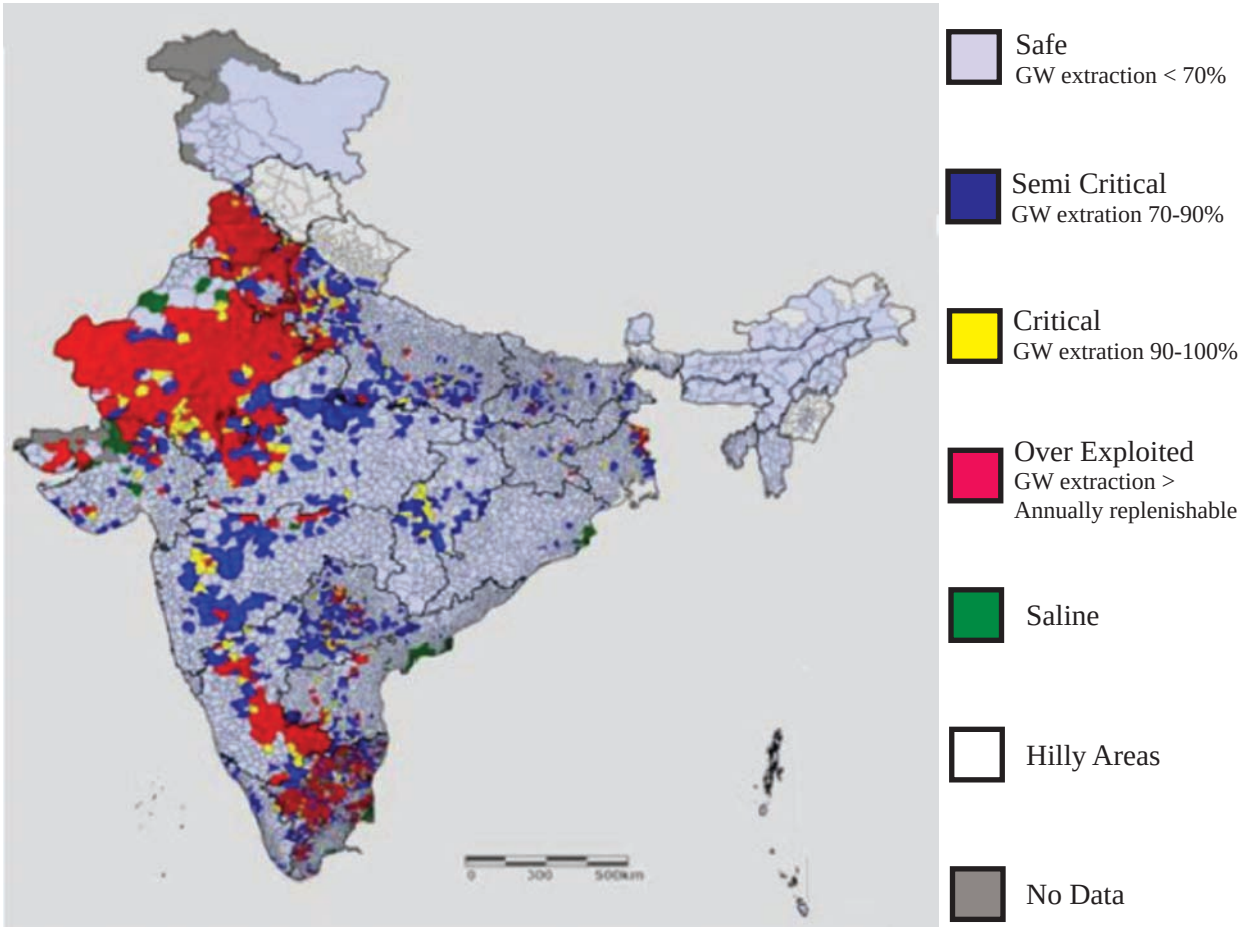


Source: National Compilation on Dynamic Ground Water Resources of India, 2020

6.27 The extent of ground water extraction varies across the country. The ground water assessment units (blocks/ taluks/ mandals/ tehsil/ firkas etc.) are categorized based on the Stage of Extraction (SoE) as 'Safe' if SoE < 70 per cent; 'Semi-critical' if SoE > 70 per cent and <= 90 per cent; 'Critical' if SoE >90 per cent and <=100 per cent and 'Over-exploited' if SoE> 100 per cent. Assessment unit in which the ground water resources are entirely saline, have been categorised as 'Saline'. Figure 18 shows the per cent of number of assessment units of India under different categories (Safe, Semi-critical, Critical, Over-exploited and Saline) during 2004-2020. During this period, units categorized as "safe", have declined from 2009 (73 per cent) to 2020 (64 per cent). "Semi-critical" units have increased from 9 per cent in 2009 to 15 per cent in 2020. The share of "Critical" units has remained in the range of 3-5 per cent during 2004-2020. The share of "Over-exploited" units, accounted for 14-17 per cent of total assessment units during 2004-20. In addition, approximately one per cent of assessment units have been categorized as "saline".

6.28 Figure 19 presents the categorization of ground water resource assessment units across India in 2020. It can be seen that over-exploitation of ground water resources, i.e. extraction exceeding the annually replenishable ground water recharge is concentrated in north-west and parts of southern India.

Figure 19: Categorization of Ground Water Resource Assessment units across India, 2020

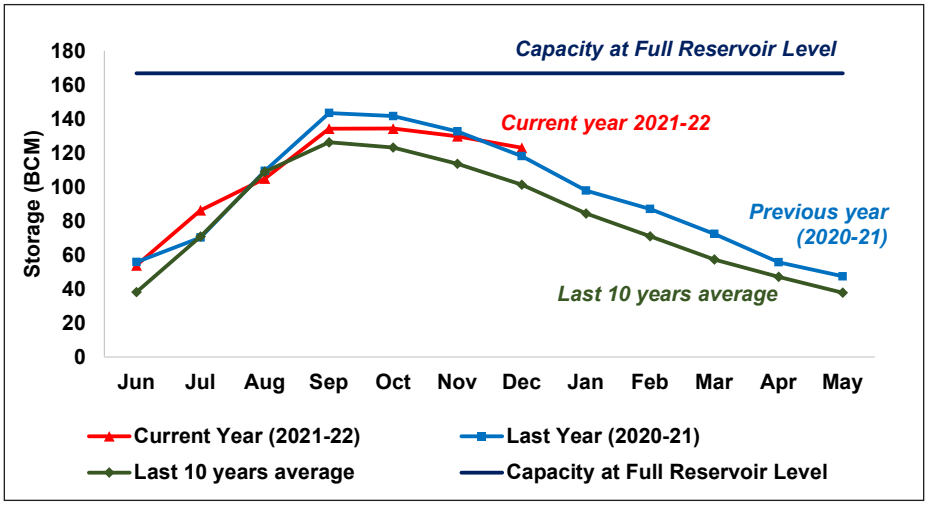


Source: National Compilation on Dynamic Ground Water Resources of India, 2020

Reservoirs

6.29 Reservoirs are an important source of water resources for the country. However, they are particularly prone to seasonality, and are greatly impacted by rainfall and temperature patterns.

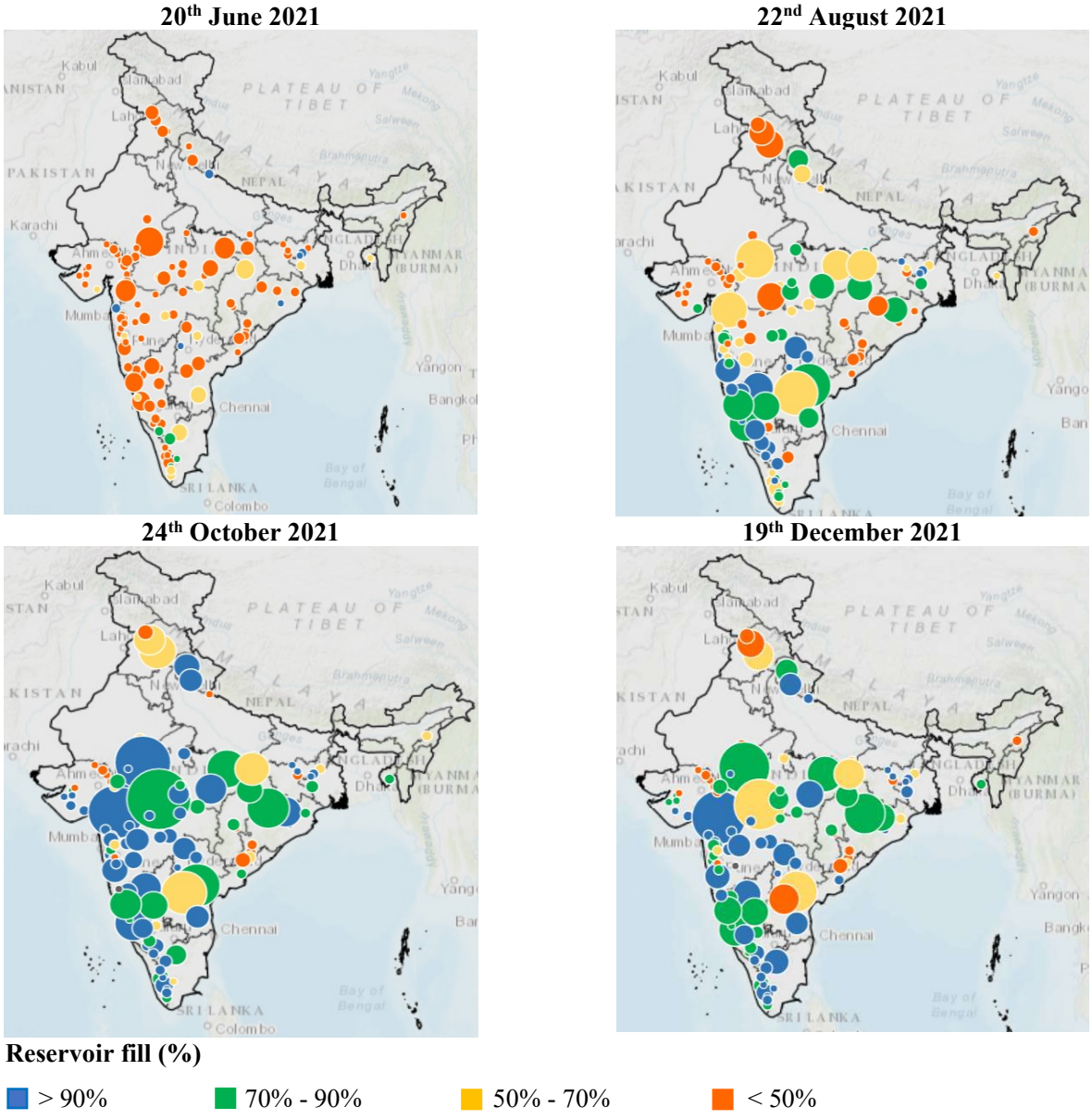
Figure 20: Reservoir capacity and live storage (bcm)



Source: India Water Resources Information System, Ministry of Jal Shakti

6.30 Figure 20 shows the capacity at full reservoir levels in 138 monitored reservoirs of India along with the live storage during June-December 2021, June 2020–May 2021, and the ten year average during the months of June – May. It may be seen that reservoir live storage is at its peak during monsoon months and lowest in summer months, requiring careful planning and coordination of storage, release and utilization of reservoirs. This is also reflected in Figure 21.

Figure 21: Reservoir fill (per cent of total capacity), 2021



Source: India Water Resources Information System, Ministry of Jal Shakti

Rivers

6.31 India has several perennial and seasonal rivers. The Ganga River Basin is the largest river basin in India, covering more than a quarter of country's land area, hosting about 43 per cent of its population and contributing 28 per cent of India's water resources. In recognition of River Ganga's significant economic, environmental, cultural and religious value, the Government of

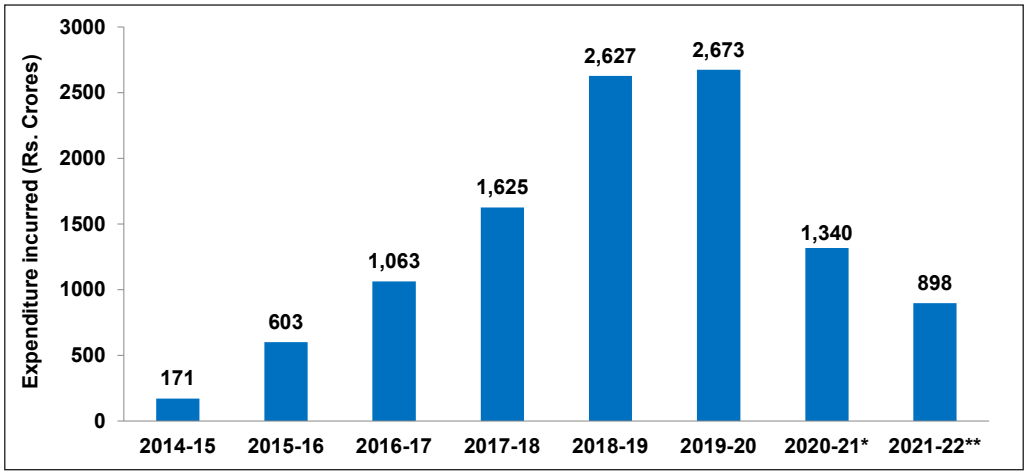
India declared River Ganga as the National River in 2008. Further, the Government of India launched the Namami Gange Mission in 2014 as an integrated and multi-sectoral mission for conservation of Ganga and its tributaries.

Namami Gange Mission

6.32 The Namami Gange Mission aims to protect, conserve and rejuvenate the Ganga River Basin. In 2015, the Cabinet approved the Mission for a period of five years (2015-2020) with a budget outlay of ₹ 20,000 crores. Subsequently, on 7th October 2016, under the Environment (Protection) Act, 1986 (29 of 1986), the National Mission for Clean Ganga (NMCG) was notified as an authority under Environment Protection Act, which is also the nodal agency responsible for monitoring and implementing the Namami Gange Mission. The activities undertaken as part of the Mission rest upon four pillars –Nirmal Ganga (Unpolluted Flow), Aviral Flow (Continuous Flow), Jan Ganga (People-River Connect) and Gyan Ganga (Research and Knowledge Management). As of December 2021, a total of 363 projects worth ₹ 30,841.53 crores have been sanctioned under the mission.

6.33 Figure 22 shows the total expenditure incurred under the Namami Gange Mission since 2014-15 to December 2021. Lower expenditure incurred in 2020-21 and 2021-22 needs to be viewed in the context of the COVID pandemic and recent changes in accounting norms.

Figure 22: Expenditure incurred under the Namami Gange Mission during 2014-22 (₹ Crores) as of December 2021



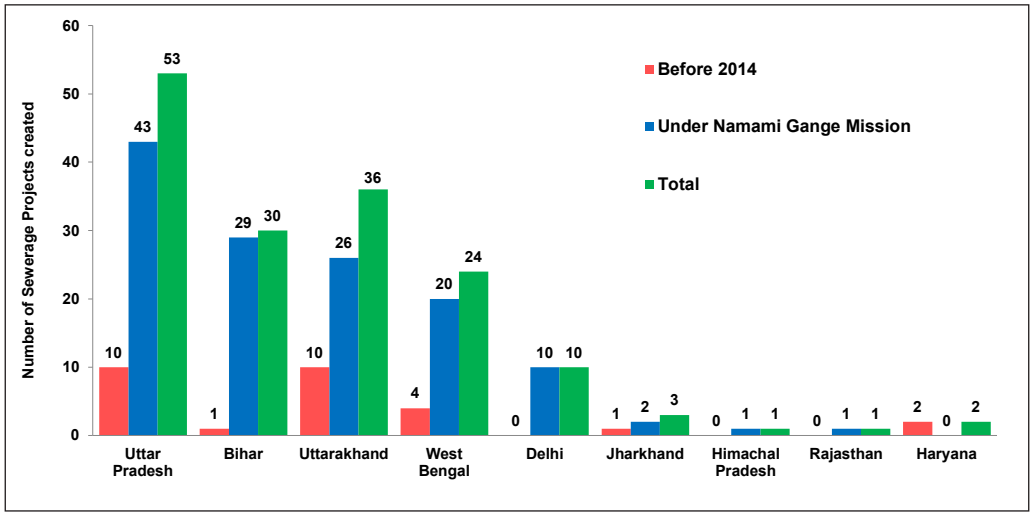
*Due to COVID 19 Pandemic
** The data in the graph is till December 2021
Source: National Mission for Clean Ganga (NMCG)

6.34 In addition, the Clean Ganga Fund (CGF) was established in 2014 with the objective of contributing to the national effort of improving the cleanliness of river Ganga with the contributions received from the residents of the country, NRIs/ PIO, corporates and organizations. As of 31st December 2021, a total of ₹ 561.58 crore has been received under the CGF.

6.35 Under the Nirmal Ganga (Unpolluted Flow) component of the mission, 160 sewerage projects have been sanctioned at a cost of ₹ 24,568 crores as of December 31, 2021 to create a cumulative treatment capacity of 5,024 MLD, reflecting a ten-fold increase from 463 MLD through 28 projects in 2014. Figure 23 shows the state-wise distribution of the sewerage

infrastructure projects created under the Namami Gange Mission since its inception, with the highest number of projects undertaken in Uttar Pradesh (43), followed by Bihar (29) and Uttarakhand (26).

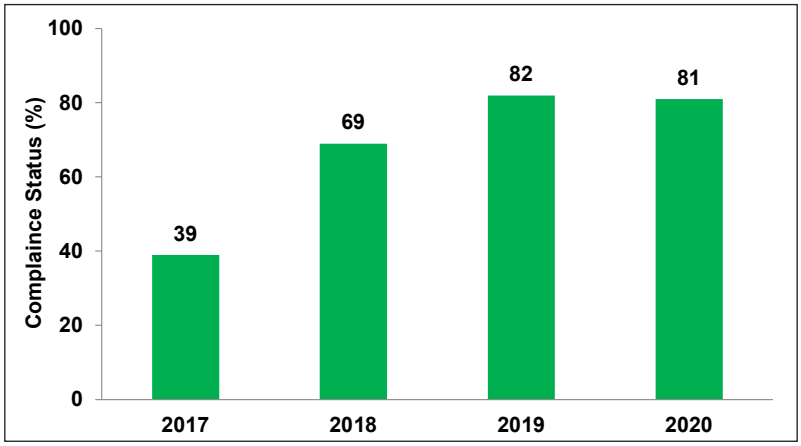
Figure 23: Sewerage Infrastructure Projects created under the Namami Gange Mission as of December 31, 2021



Source: National Mission for Clean Ganga (NMCG)

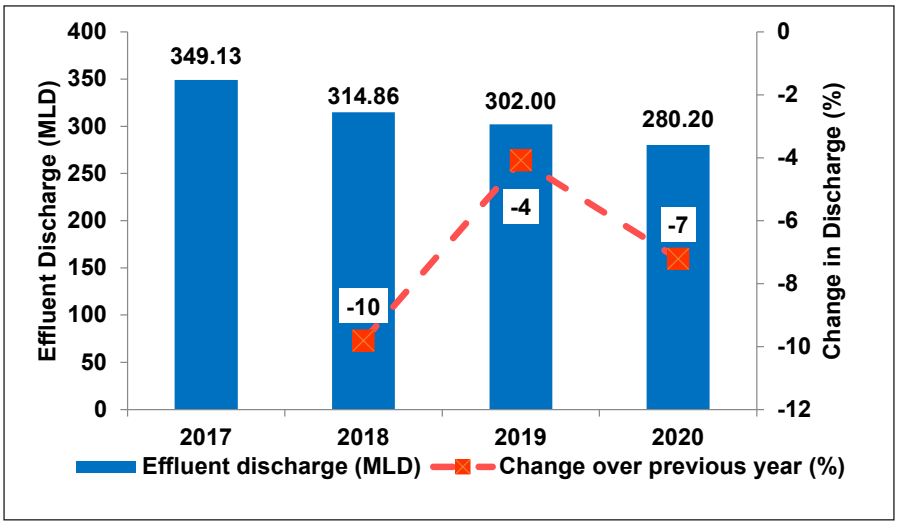
6.36 Further, Grossly Polluting Industries (GPIs) along River Ganga have been inventoried. Since 2015, sector specific charters for implementation of cleaner technology, upgradation of treatment facility and adaptation of waste minimization practices have been implemented in the major industrial sectors like pulp & paper, distilleries, sugar and textile by involving different stakeholders. These actions have resulted in significant reduction in wastewater discharge and pollution load. Figure 24 shows the improvement in compliance status of GPIs located in the Ganga main stem and its tributaries from 39 per cent in 2017 to 81 per cent in 2020 due to regular monitoring of these industries through annual inspections by independent technical institutes. Figure 25 shows the consequent reduction in effluent discharge from 349.13 MLD in 2017 to 280.20 MLD in 2020.

Figure 24: Compliance Status of Grossly Polluting Industries along Ganga (2017-20)



Source: National Mission for Clean Ganga (NMCG)

Figure 25: Change in Effluent Discharge along Ganga main stem and tributaries (2017-20)



Source: National Mission for Clean Ganga (NMCG)

6.37 To ensure Aviral Flow (Continuous Flow) of the Ganga, a historical ecological flow notification mandating the minimum flow of river Ganga was released in 2016, recognizing the right of the river over its own water. Other steps in this direction include afforestation of 29,000 Ha; first of its kind river bio-diversity assessment for the main stem Ganga river covering over 2,200 km; identification of 279 wetlands for conservation; and preparation of integrated management plan for 118 wetlands.

6.38 The Jan Ganga (People-River Connect) component acknowledges the critical importance of strengthening the people-river connection in achieving the mission objectives. Ganga Quest 2021 got an enthusiastic response of over 1 million participants from 113 countries. Ganga Utsav 2021 was celebrated for the first time as a river festival extending beyond Ganga basin cities. The River City Alliance was launched in November 2021, as a platform for river cities in India to ideate, discuss, and exchange information for the sustainable management of urban rivers.

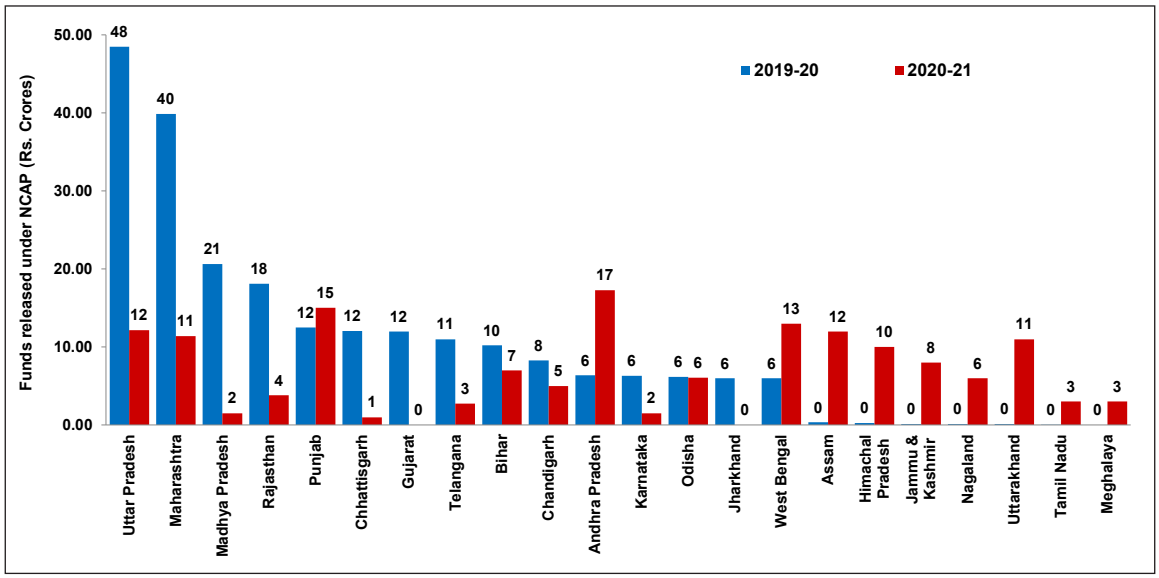
6.39 Finally, under the Gyan Ganga (Research and Knowledge Management) component, the Ganga Knowledge Centre was set up to create a state-of-the-art center to support the NMCG and create a comprehensive knowledge base on Ganga. In addition, the Centre for Ganga Management & Study was set up at IIT Kanpur for long term basin studies and technology development.

Air

6.40 Air pollution is one of the biggest global environmental challenges. The Government of India launched the National Clean Air Programme (NCAP) in 2019 to tackle the air pollution problem in a comprehensive manner, with a target to achieve 20-30 per cent reduction in particulate matter (PM) concentrations by 2024 across the country keeping 2017 as the base year for the comparison of concentration. The NCAP is implemented in 132 cities, of which 124 cities have been identified based on non-conformity with national ambient air quality standards for five consecutive years. This includes 34 million plus cities / urban agglomerations identified

by the Fifteenth Finance Commission (XV-FC). In addition, NCAP also covers eight other million plus cities, which fall under XV-FC grant for receiving performance based grant for air quality improvement. Figure 26 shows the funds released under the NCAP in 2019-20 and 2020-21. In 2019-20, the highest funds were released to Uttar Pradesh, followed by Maharashtra and Madhya Pradesh while in 2020-21, the highest funds were released to Andhra Pradesh, Punjab and West Bengal.

Figure 26: Funds released under the National Clean Air Programme (₹ Crores)



Source: Ministry of Environment, Forest and Climate Change

6.41 Several steps are being taken to control and minimize air pollution from various sources in the country, which inter alia include:

i. **Vehicular Emission:** India has leap frogged from BS-IV to BS-VI norms for fuel and vehicles since April, 2020. Metro rail networks for public transport have been enhanced and more cities have been covered. Cleaner/alternate fuels like CNG, LPG and ethanol blending in petrol have been introduced. Government has approved Phase-II of FAME Scheme with an outlay of ₹ 10,000 Crore for a period of five years commencing from 1st April 2019. Out of total budgetary support, about 86 per cent of fund has been allocated for demand incentive so as to create demand for electric vehicles in the country. This phase aims to generate demand by way of supporting 7,090 e-buses, 5 lakh e-3 wheelers, 55,000 e-4 wheeler passenger cars (including strong hybrid) and 10 lakh e-2 wheelers. Permit requirement for electric vehicles has been removed.

ii. **Industrial Emission:** Stringent emission norms for coal based thermal power plants have been introduced. There is ban on use of imported pet coke in the country since July 2018, with exception for permitted processes. Online continuous emission monitoring devices have been installed in highly polluting industries. Brick kilns have been shifted to zig-zag technology to reduce pollution.

iii. **Air Pollution due to dust and burning of waste:** Six waste management rules covering solid waste, plastic waste, e-waste, bio-medical waste, construction and demolition

waste and hazardous waste have been notified. Waste processing plants have been set up. Extended producer responsibility for plastic and e-waste management has been introduced. Burning of biomass/garbage has been banned.

iv. **Monitoring of Ambient Air Quality:** Air quality monitoring network of manual as well as continuous monitoring stations, under programmes such as National Air Monitoring Programme, have been expanded. Pilot projects have been initiated to assess alternate ambient monitoring technologies such as low-cost sensors and satellite-based monitoring. Air Quality Early Warning System, which provides alerts for taking timely actions, is being implemented in Delhi, Kanpur and Lucknow.

6.42 As a result of these initiatives, 96 cities showed a decreasing trend of PM10 concentration in 2020-21 as compared to 2019-20. The number of cities within the prescribed National Ambient Air Quality Standard (PM10 less than 60 µg/m3) also increased from 18 in 2019-20 to 27 in 2020-21. However, air pollution remains a major concern, with 36 cities showing an increasing trend in PM10 concentration in 2020-2021 as compared to 2019-2020.

6.43 In addition to the above measures, some key measures being taken for reducing air pollution in Delhi / NCR are as follows:

i. A Commission on Air Quality Management in NCR and Adjoining Areas was promulgated vide ordinance dated 13th July 2021 for better co-ordination, research, identification and resolution of problems surrounding the air quality index.

ii. To control emissions from stubble burning, under Central Government Scheme on 'Promotion of Agricultural Mechanization for in-situ management of Crop Residue in the States of Punjab, Haryana, Uttar Pradesh and NCT of Delhi', agricultural machines and equipment for in-situ crop residue management are promoted with 50 per cent subsidy to the individual farmers and 80 per cent subsidy for establishment of custom hiring centres.

iii. All diesel vehicles older than 10 years and all petrol vehicles older than 15 years have been banned in Delhi and NCR.

iv. Expressways & Highways have been operationalized to divert non-destined traffic away from Delhi.

v. Shifting industries to clean fuel and installation of Online Monitoring of Industrial Emission & Effluent systems in red category industries in Delhi-NCR is in progress.

6.44 As a result of these interventions, there has been an improvement in air quality index for Delhi since 2016 as seen in Table 2. The number of 'Good', 'Satisfactory' and 'Moderate' days increased to 197 in 2021 as against 108 in 2016, and number of 'Poor', 'Very Poor' and 'Severe' days decreased to 168 in 2021 against 246 in 2016. The lower number of 'Good', 'Satisfactory' and 'Moderate' days and higher number of 'Poor', 'Very Poor' and 'Severe' days in 2021 as compared to 2020 must be viewed in the context of the 2020 COVID-19 lockdowns.

Table 2: Average Annual Air Quality Index, Delhi (2016-2021)

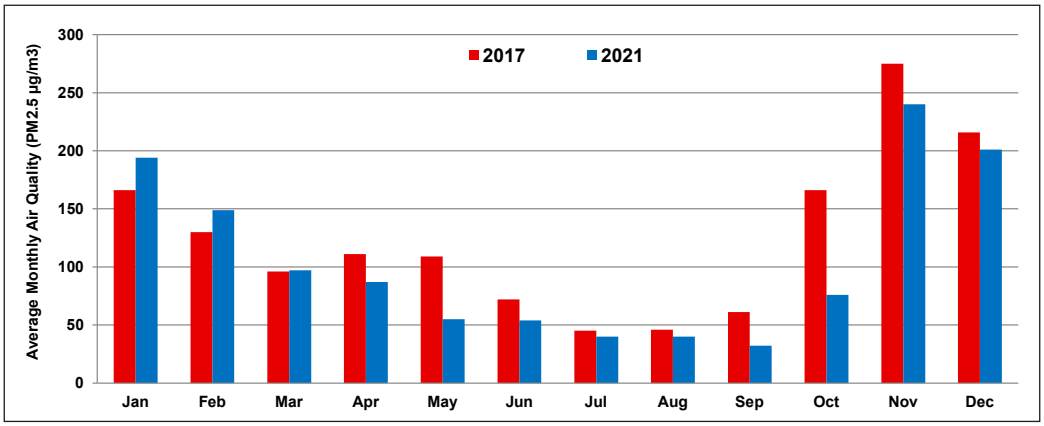
Year (no. of days) / Category	2016 (354)	2017 (365)	2018 (365)	2019 (365)	2020 (366)	2021 (365)	2016	2017	2018	2019	2020	2021
Good (0–50)	0	2	0	2	5	1						
Satisfactory (51–100)	25	45	53	59	95	72	108	152	159	182	227	197
Moderate (101–200)	83	105	106	121	127	124						
Poor (201–300)	120	115	113	103	75	80						
Very Poor (301–400)	101	89	73	56	49	64	246	213	206	183	139	168
Severe (>401)	25	9	20	24	15	24						

Source: Ministry of Environment, Forest and Climate Change

6.45 In addition, Continuous Ambient Air Quality Monitoring Stations (CAAQMS) data for Delhi reveals that annual concentration of PM has decreased gradually since 2016. Delhi achieved approximately 22 per cent reduction in PM2.5 and 27 per cent reduction in PM10 in 2021 as compared to 2016.

6.46 Figure 27 shows the average monthly air quality (PM2.5) for Delhi during 2017-21. In 2021, nine months registered an improvement over 2017, with the largest improvements seen in October (54 per cent), May (50 per cent) and September (48 per cent). In 2021, average monthly air quality in Delhi declined in January (17 per cent), February (15 per cent) and March (one per cent) as compared to corresponding months in 2017, indicating an area of concern.

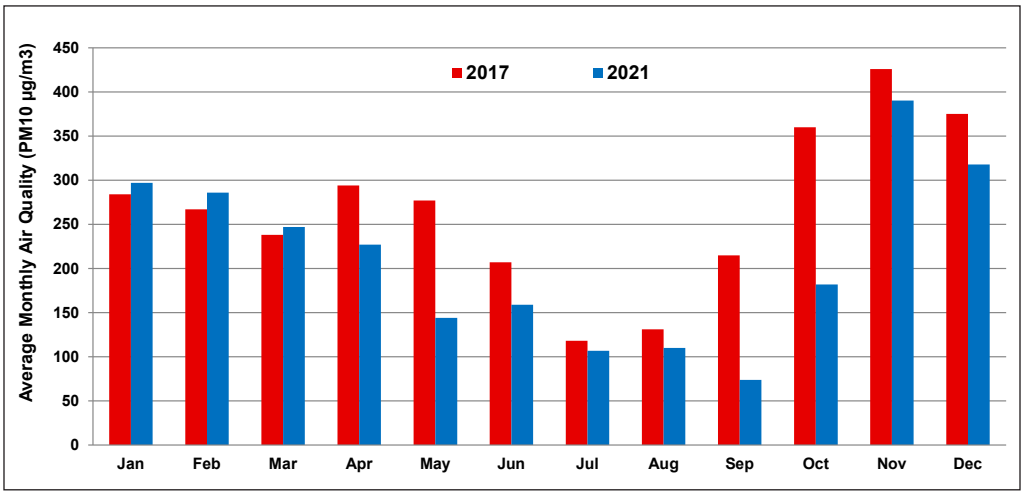
Figure 27: Average Monthly CAAQMs of Delhi (2017-2021) (PM2.5 in µg/m3)



Source: Ministry of Environment, Forest and Climate Change

6.47 Figure 28 shows the average monthly air quality (PM10) for Delhi during 2017-21. In 2021, nine months registered an improvement over 2017, with the largest improvements seen in September (66 per cent), October (49 per cent) and May (48 per cent). In 2021, average monthly air quality in Delhi declined in January (five per cent), February (seven per cent) and March (four per cent) as compared to corresponding months in 2017, indicating an area of concern.

Figure 28: Average Monthly CAAQMs of Delhi (2017-2021) (PM10 in µg/m3)



Source: Ministry of Environment, Forest and Climate Change

CLIMATE CHANGE

6.48 India launched the National Action Plan on Climate Change (NAPCC) in 2008, establishing eight National Missions to advance action on the country's climate priorities. The major developments under the NAPCC are presented in Table 3.

Table 3: National Missions under NAPCC

Missions	Major Objectives/ Target	Progress
1. National Solar Mission (NSM)	Achieve 100 GW of solar power in seven years starting from 2014-15	As of 31st December 2021, solar power capacity of 49.35 GW has been installed in the country.
2. National Mission for Enhanced Energy Efficiency (NMEEE)	- To achieve growth with ecological sustainability - Mandating reduction in energy consumption in large energy consuming industries - Financing for PPP to reduce energy consumption through demand-side management programs in the municipal, buildings and agricultural sectors - Energy incentives, including reduced taxes on energy-efficient appliances	The Perform Achieve and Trade (PAT) Scheme was initiated in March 2012 - Implementation of PAT Cycle I (2012-2015) resulted in annual energy savings of 8.67 Million Tonne of Oil Equivalent (MTOE) from 8 sectors. Emission reduction of 31 million tonnes of CO2 was achieved. - Under PAT Cycle II (2016-17 to 2018-19), annual energy savings of 14.08 MTOE was achieved from 11 sectors. Emission

		reduction of 66.01 million tonnes of CO2 was achieved. - PAT Cycle III (2017-18 to 2019-20) concluded on 31st March 2020. Results of this cycle are awaited. - Currently, PAT Cycle IV is under implementation. Energy savings of approximately 26 MTOE are expected to be achieved.
3. National Mission for a Green India (GIM)	Improved ecosystem services by increasing forest/tree cover by 5 m ha and improving quality of forest cover on another 5 m ha (a total of 10 m ha).	- A sum of ₹ 455.75 crore has been released to 14 states and one UT during 2015-16 to 2020-21. - Afforestation activities were taken up over an area of 1,17,757 ha. - Alternative fuel energy devices have been distributed to 33,099 households.
4. National Mission on Sustainable Habitat (NMSH)	- Development of sustainable habitat standards. - Promoting energy efficiency as a core component of urban planning by extending the existing Energy Conservation Building Code - Strengthening enforcement of automotive fuel economy standards - Using pricing measures to encourage the purchase of efficient vehicles and incentives for the use of public transportation	- NMSH is being implemented through three programmes: Atal Mission on Rejuvenation and Urban Transformation, Swachh Bharat Mission, and Smart Cities Mission - Energy Conservation Building Rules 2018 has been made mandatory for commercial buildings having connected load of 100 KW or above. - 702 km of conventional metro is operational in the country. Additional 1,016 km of metro and regional rapid transit system is under construction in 27 cities.

		- Under Smart Cities Mission, Climate Smart Cities Assessment Framework 2019 has been launched to provide clear roadmap to combat climate change through mitigation and adaptation measures. - Urban Swachh Bharat Mission 2.0 will be implemented with a total financial allocation of ₹ 1,41,678 crores over a period of 5 years from 2021-2026.
5. National Water Mission (NWM)	- Focuses on monitoring of ground water, aquifer mapping, capacity building, water quality monitoring and other baseline studies. - Promoting citizen and state action for water conservation, augmentation, and preservation. - Focusing attention on overexploited areas. - Promoting basin-level integrated water resources management.	- The National Institute of Hydrology is the nodal agency to get the State Specific Action Plan (SSAP) for the water sector for 19 selected states. Five States have completed the first phase of SSAP. - 15640 ground water observation wells are being monitored by Central Ground Water Board.
6. National Mission for Sustainable Agriculture	Enhancing food security by making agriculture more productive, sustainable, remunerative, and climate resilient	- The mission has resulted in the formation of National Innovations on Climate Resilient Agriculture, a network project of the Indian Council of Agricultural Research. - Key targets for FY 2021-2025 include covering 20 lakh hectare of area under organic farming, 87 lakh hectare under precision irrigation, 2.10 lakh hectare

		under System for Rice Intensification, 6 lakh hectare under diversification to less water consuming crop, 1.19 lakh hectare additional area under plantation in arable land.
7. National Mission for Sustaining Himalayan Ecosystems	- To continuously assess the health status of the Himalayan Ecosystem - Enable policy bodies in their policy formulation functions - Establish new centres relevant to climate change in existing institutions in Himalayan States - Regional cooperation with neighbouring countries in Glaciology	- Centre for Glaciology has been established at Wadia Institute of Himalayan Geology - State climate change centres have been set up in 12 Himalayan states - State climate change cells have been established in 11 out of 12 Himalayan states - 40 capacity building training programmes have been conducted and 40,000 people have been trained. Glaciologists have been trained under Indo-Swiss Capacity Building Programme in glaciology - an Inter-University Consortium of 4 universities on Himalayan Cryosphere and Climate Change has been formed - Glacial lake outburst floods R&D studies for vulnerability assessment have been conducted for Sikkim
8. National Mission on Strategic Knowledge for Climate Change (NMSKCC)	- To gain better understanding of climate science and formation of knowledge networks among existing knowledge institutions engaged in research and development (R&D)	- The mission has created and strengthened 11 Centres of Excellence for climate change. - State Climate Change Cells have been established

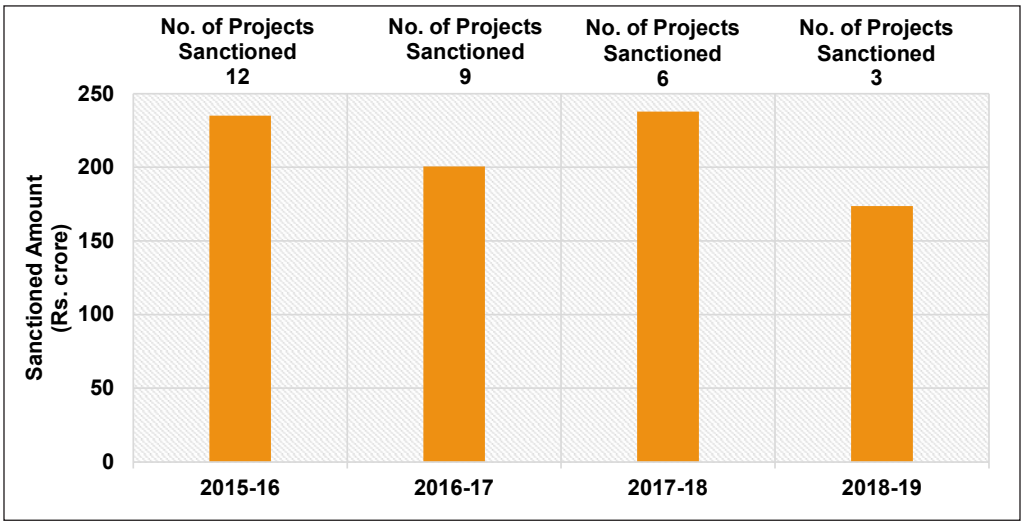
	- Development of national capacity for modelling the regional impact of climate change on different ecological zones within the country.	in 11 out of 12 Himalayan States and in 11 non-Himalayan States. - 6 lead institutions now conduct training on climate change science, impacts and adaptation under its human capacity building programme. - Revised mission document aims to establish 20 centres of excellence, state climate change cells in all states/UTs, develop major R&D programmes, human capacity building programmes, national level network programmes and international cooperation

Source: Ministry of Environment, Forest and Climate Change and Ministry of Power

6.49 Climate Change Action program (CCAP) is a central sector scheme, initially launched in 2014, with a total outlay of ₹ 290 crores for duration of five years. The scheme has now been extended upto 2025-26, and consists of eight broad sub-components including the National Action Plan on Climate Change (NAPCC) coordination, State Action Plan on Climate Change (SAPCC), National Institute on Climate Change Studies & Actions, National Carbonaceous Aerosols Programme (NCAP), Long Term Ecological Observations (LTEO), International negotiations and capacity building.

6.50 India's climate actions, especially the adaptation efforts are largely financed domestically. The National Adaptation Fund on Climate Change (NAFCC) was launched in 2015, and 30 projects with a total allocation of ₹ 847.5 crores have been sanctioned from 2015-19 (Figure 29). The projects focus on climate sensitive sectors such as agriculture, water, forestry as well as the coastal and Himalayan ecosystem, and are being implemented to enhance the adaptive capacity of the most vulnerable sections of our population and ecosystems.

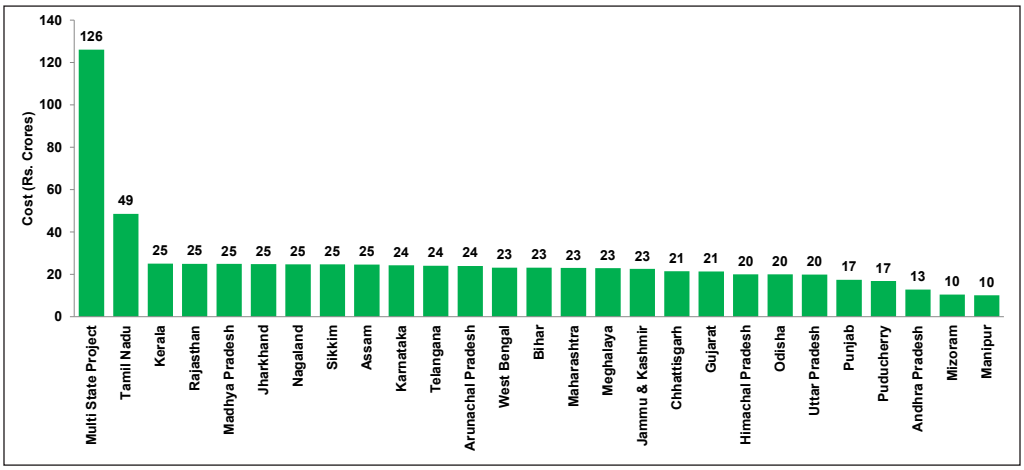
Figure 29: Projects sanctioned under the National Adaptation Fund on Climate Change (NAFCC)



Note: No new projects have been sanctioned after 2018-19
Source: Ministry of Environment, Forest and Climate Change

6.51 Of the 30 sanctioned projects under NAFCC, two projects – in Haryana and one regional project (covering Haryana, Punjab, Rajasthan and Uttar Pradesh) – have closed down. Figure 30 shows the cost of the 28 projects being implemented under the NAFCC across 26 states (of which Tamil Nadu has two projects) and one multi-state project (covering Maharashtra, Rajasthan and Telangana).

Figure 30: Cost of Projects being implemented under the National Adaptation Fund on Climate Change (NAFCC)



Note: All states above have 1 project under implementation, except Tamil Nadu, which has two projects under implementation. In addition, the multi-state project covers Maharashtra, Rajasthan and Telangana
Source: Ministry of Environment, Forest and Climate Change

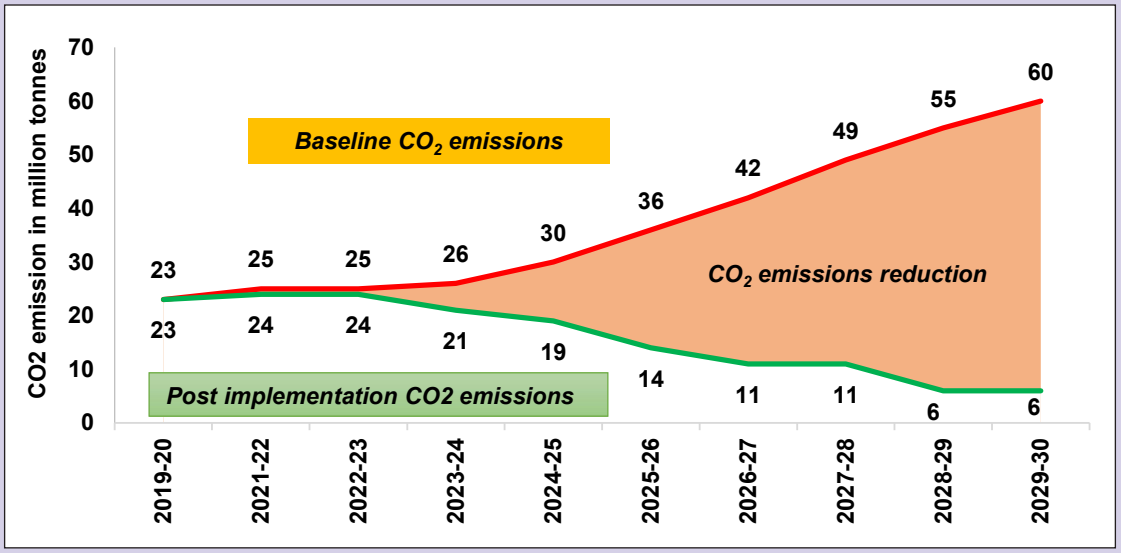
Box 2: Major Initiatives and Achievements

India has announced the National Hydrogen Mission for generating hydrogen from green energy sources. Through technological advancements, hydrogen is being blended with CNG for use as transportation fuel as well as an industrial input to refineries.

On June 5, 2021, the Hon'ble Prime Minister announced 20 per cent ethanol blending in petrol by 2025. The ambitious target, which brings forward the blending target from 2030 to 2025, is a key element of the economy-wide energy transformation. As of September 2021, the country has already reached 8.5 per cent ethanol blending and is on track to achieve the 20 per cent target by 2025. Considerable benefits can accrue to the country by ethanol blending, such as saving USD 4 billion foreign exchange per year in imports, enhancing energy security, lowering carbon emissions, improving air quality, promoting productive use of damaged food grains and waste, increasing farmers' incomes, creating employment and investment opportunities. The Government is expecting an investment of up to USD 5,541 million to help India achieve its ethanol blending target of 10 per cent by 2022 and 20 per cent by 2025.

Indian Railways has set a target of Net Zero Carbon Emission by 2030, primarily through sourcing its energy requirements through renewable energy sources. Major initiatives undertaken for reduction of carbon emissions include 100 per cent electrification of its network by December 2023, use of three phase technology for regenerative braking, "head on generation" technology eliminating the need for separate diesel fuelled power cars, use of renewable energy source (133.26 MW solar and 103 MW wind installed capacity), provisioning of LED lights at all railway installations, and creation of additional carbon sink by afforestation. Figure below shows the expected CO2 emission reduction by Indian Railways through use of renewable energy.

Expected CO2 emissions reduction by Indian Railways through use of renewable energy



Source: Ministry of Railways

India has launched the Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan (PM-KUSUM) Scheme to provide energy and water security, de-dieselise the farm sector and generate additional income for farmers by producing solar power. The scheme aims to add 30.8 GW of solar capacity with central financial support of over ₹ 34,000 Crore. It has three components – (a) installation of

10,000 MW of decentralized grid connected solar power plants each of capacity up to 2 MW, (b) setting up of 20 lakh standalone solar powered agriculture pumps, and (c) solarisation of 15 Lakh existing grid-connected agriculture pumps. RBI has included these components under Priority Sector Lending Guidelines for easing availability of finance. As of 31st December, 2021 over 77000 stand-alone solar pumps, 25.25 MW capacity solar power plants and over 1026 pumps were solarised under individual pump solarisation variant. Implementation of feeder level solarisation variant under component C which was introduced in December 2020 has also started in a number of states.

To facilitate large scale grid connected solar power projects, a scheme for "Development of Solar Parks and Ultra Mega Solar Power Projects" is under implementation with a target capacity of 40 GW capacity by March 2024. So far, 50 solar parks have been sanctioned with a combined capacity of 33.82 GW in 14 states. Solar power projects of an aggregate capacity of around 9.2 GW have already been commissioned in these parks.

Roof Top Solar programme Phase-II for accelerated deployment of solar roof top systems, with a target of 40 GW installed capacity by December 2022, is also under implementation. The scheme provides for financial assistance for upto 4 GW of solar roof top capacity to residential sector and there is a provision to incentivise the distribution companies for incremental achievement over the previous year. So far, a cumulative 5.87 GW solar roof top projects have been set up in the country.

A scheme for setting up 12 GW Grid-Connected Solar PV Power Projects by government entities (including Central Public Sector Undertakings) is under implementation. Viability Gap Funding support is provided under this scheme. Under this scheme, Government has so far sanctioned around 8.2 GW of projects.

Phase-III of the Off-Grid Solar PV Applications Programme for Solar Street Lights, Solar Study Lamps and Solar Power Packs was available till 31.03.2021. Till December 2021 over 1.45 lakh solar street lights were installed, 9.14 lakh solar study lamps were distributed and about 2.5 MW solar power packs were set-up as reported by State Nodal agencies.

Government of India has notified the offshore Wind Energy Policy to harness the potential of offshore wind energy along India's coastline. Ministry of New and Renewable Energy is developing strategy and roadmap for installation of offshore wind projects off the coast of Gujarat and Tamil Nadu. The Ministry has notified the wind solar hybrid policy, providing a framework for promotion of large grid connected wind-solar PV hybrid projects for optimal and efficient utilization of transmission infrastructure and land, reducing the variability in renewable power generation and achieving better grid stability. As of 31st December 2021, capacity of around 4.25 GW of wind-solar hybrid have been awarded, out of which 0.2 GW is already commissioned and additional capacity of 1.2 GW wind-solar hybrid projects are at various stages of bidding.

Major decisions at the COP26 Climate Summit, Glasgow

6.52 The 26th Session of the Conference of the Parties (COP 26) to the UNFCCC was held under the UK Presidency in Glasgow from 31st October – 13th November 2021. The 16th Session of the Conference of Parties serving as the meeting of the Parties to the Kyoto Protocol (CMP16), 3rd Session of Conference of the Parties serving as the Meeting of Parties to Paris Agreement (CMA3), Sessions 52-55 of the Subsidiary Body for Scientific and Technological Advice (SBSTA) and the Subsidiary Body for Implementation (SBI) were also held in conjunction

with COP26. These sessions were held after a hiatus of one year in 2020 in view of the global COVID-19 pandemic.

6.53 The COP26 adopted outcomes on all pending issues of the "Paris Rule Book", which is the procedures for implementation of the Paris Agreement, including market mechanisms, transparency, and common timeframes for NDCs. India sought for the just transition for the developing countries with adequate time frame so that the green economy benefits are shared with all.

6.54 The "Glasgow Climate Pact" emphasizes adaptation, mitigation, finance, technology transfer, capacity-building, loss and damage. The decision urges the developed country Parties to fully deliver on the USD 100 billion mobilization goal urgently and through till 2025, and emphasizes the importance of transparency in the implementation of their pledges. It urges developed countries to at least double adaptation finance to developing countries from 2019 levels by 2025. Further, it emphasises the need to significantly increase financial support to developing countries, welcomed initiation of structured deliberations on a new collective quantified goal on climate finance, and looked forward to the ad-hoc work program established under the Paris Agreement from 2022 to 2024 towards this goal. In addition, the Standing Committee on Finance (which is a technical committee under UNFCCC) has now been mandated to work towards arriving at definitions of climate finance.

6.55 COP26 also welcomed the launch of a comprehensive two-year Glasgow–Sharm el-Sheikh work programme on the global goal on adaptation. The Glasgow Dialogue between Parties, relevant organisations and stakeholders on loss and damage was established to explore the ways to fund loss and damage due to climate change. It also decided to convene an annual high-level ministerial round table on pre-2030 ambition, beginning at the fourth session of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement.

India's NDC and its voluntary commitment on enhanced climate action.

6.56 India's commitments made under the United Nations Framework Convention on Climate Change (UNFCCC) and its Paris Agreement, reflect the principles of equity, common but differentiated responsibilities and respective capabilities in the light of national circumstances. India's climate vision is also integrally linked to India's vision of development that foregrounds the goals of poverty eradication and guaranteeing basic well-being as an immediate necessity to meet the challenge of global warming.

6.57 India submitted its Nationally Determined Contribution (NDC) under the Paris Agreement on a "best effort basis" keeping its developmental imperatives in mind. India committed to (i) reduce the emission intensity of GDP by 33 to 35 per cent by 2030 as compared to 2005 level; (ii) create an additional carbon sink of 2.5 to 3 billion tonnes of CO2 equivalent through additional forest and tree cover by 2030; and (iii) achieve about 40 per cent cumulative electric power installed capacity from non-fossil fuel energy resources by 2030. Against these targets, India's third Biennial Update Reports (BUR) submitted to the UNFCCC in 2021 reports that during 2005-2016, the country had reduced emission intensity of its GDP by 24 per cent. According to the India State of Forest Report 2021 released in January 2022, the total carbon stock in the country's forests is estimated to be 7,204 million tonnes, and the carbon stock in forest has

increased by 79.4 million tonnes as compared to the last assessment of 2019. According to the Central Electricity Authority, as on 31st December 2021, the share of non-fossil sources in installed capacity of electricity generation was 40.20 per cent.

6.58 The Hon'ble Prime Minister of India, as a part of the national statement delivered at the 26th Conference of the Parties (COP 26) in Glasgow in November 2021, announced ambitious targets to be achieved by 2030 to enable further reduction in emissions.

6.59 In order to coordinate India's response on climate change, an institutional framework of a high-level inter-ministerial Apex Committee for the Implementation of Paris Agreement (AIPA) has been created. The Committee reflects India's whole-of-government approach towards climate action. The purpose of AIPA is to generate a coordinated response on climate change and ensure that India is on track towards meeting its obligations under the Paris Agreement. Year 2021 marks the beginning of the implementation phase of the Paris Agreement and constitution of AIPA is central to strengthening the institutional arrangements for implementation and monitoring of climate actions.

FINANCE FOR SUSTAINABLE DEVELOPMENT

Dealing with Financial Risks associated with Climate Change

6.60 Climate change-related financial risks pose both micro and macro prudential concerns. In May 2021, the Reserve Bank of India (RBI) set up a new unit–'Sustainable Finance Group' (SFG) within its Department of Regulation to effectively counter these risks, and for leading the regulatory initiatives in the areas of sustainable finance and climate risk. The SFG is co-ordinating with, and participating in issues relating to sustainable finance or climate risk, with the international standard setting / co-operation bodies, other central banks, other financial sector regulators and the Government of India. The group would also be instrumental in suggesting strategies and evolving a regulatory framework, including appropriate climate-related disclosures, which could be prescribed for banks and other regulated entities to propagate sustainable practices and mitigate climate-related risks in the Indian context.

6.61 To assess the progress of its regulated entities in managing climate risk, RBI is preparing a consultative discussion paper covering, inter alia, (i) governance, (ii) strategy, (iii) risk management, and (iv) disclosure. The discussion paper will sensitize regulated entities to incorporate climate-related and environmental risks in their business strategies, governance and risk management frameworks. In line with the international best practices, banks will be guided to adopt a forward-looking, comprehensive, and strategic approach to climate-related risks.

Augmenting Finance for Sustainable Development

6.62 In January 2021, a Task Force on Sustainable Finance has been set up by the Department of Economic Affairs, Ministry of Finance, Government of India. The Terms of Reference of the Task Force include defining the framework for sustainable finance in India, establishing the pillars for a sustainable finance roadmap, suggesting draft taxonomy of sustainable activities and a framework of risk assessment by the financial sector.

6.63 India is actively contributing to the global efforts towards green finance. RBI joined the Central Banks and Supervisors Network for Greening the Financial System (NGFS) as a member on April 23rd, 2021 and has begun participating in the work streams of the NGFS. On November 3, 2021, RBI published a 'Statement of Commitment to Support Greening India's Financial System - NGFS' and committed to:

i. Exploring how climate scenario exercises can be used to identify vulnerabilities in RBI supervised entities' balance sheets, business models and gaps in their capabilities for measuring and managing climate-related financial risks
ii. lntegrating climate-related risks into financial stability monitoring
iii. Building awareness about climate-related risks among regulated financial institutions and spreading knowledge about issues relating to climate change and methods to deal with them accordingly.

6.64 The liberalised External Commercial Borrowings (ECB) norms of RBI have enabled the Indian renewable energy companies and other firms to tap the ECB route for raising finance through green bonds and sustainable bonds, reflecting the growing attractiveness of this route for raising finance.

6.65 India is also a part of several bilateral and global sustainable finance initiatives. RBI is a member of a Task Force on Climate-related Financial Risks set up by the Basel Committee on Banking Supervision, and the International Platform on Sustainable Finance. The latter is a forum of public authorities from 17 countries, which is working on Environmental, Social and Governance (ESG) Disclosures and a Sustainable Finance Taxonomy. In October 2021, RBI has also been featured in the first Annual Report on Sustainable Financial Regulations and Central Bank Activities published by the World Wide Fund for Nature.

Investing in Resilience for Sustainable Development

6.66 There has been an increasing recognition that ESG issues can put the performance of companies at risk. In this regard, SEBI has been one of the early adopters of sustainability reporting for listed entities and requires mandatory ESG related disclosures as part of the Business Responsibility Report (BRR), for the top 100 listed entities (by market capitalisation) since 2012. The above requirement of filing BRR was progressively extended to the top 500 entities (from financial year 2016-17) and later to the top 1000 listed entities (from the financial year 2019-20). SEBI in February 2017, had encouraged the top 500 listed entities to adopt the framework of Integrated Reporting, issued by the International Integrated Reporting Council, on a voluntary basis.

6.67 In May 2021, SEBI issued new sustainability reporting requirements as per the Business Responsibility and Sustainability Report (BRSR) which shall replace the existing BRR to bring in greater transparency through disclosure of ESG-related information and by enabling market participants to identify and assess sustainability-related risks and opportunities. The BRSR is more outcome oriented and is focussed on having granular and quantifiable metrics, seeking disclosures from listed entities on their performance against the nine principles of the 'National Guidelines on Responsible Business Conduct'. The disclosures under each of these principles

are segregated into essential (mandatory) and leadership (voluntary) indicators. The BRSR shall be applicable to the top 1000 listed entities (by market capitalisation) on a mandatory basis from FY 2022–23; however, entities can choose to adopt it on a voluntary basis from FY 2021–22.

INDIA'S INITIATIVES AT THE INTERNATIONAL STAGE

Lifestyle for Environment (LIFE)

6.68 In November 2021, the Hon'ble Prime Minister proposed a One-Word Movement in the context of climate: LIFE - Lifestyle for Environment, at the COP 26 in Glasgow. This movement calls for coming together with collective participation, to take lifestyle for environment forward as a campaign and as a mass movement for environmentally conscious life style in a manner that revolutionizes many sectors and diverse areas such as fishing, agriculture, wellness, dietary choices, packaging, housing, hospitality, tourism, clothing, fashion, water management and energy.

International Solar Alliance (ISA)

6.69 In November 2021, the Hon'ble Prime Minister launched the joint Green Grids Initiative-One Sun One World One Grid (GGI –OSOWOG) at the World Leaders' Summit in Glasgow. It aims to create a globally inter-connected green grid, building upon existing regional grid infrastructure, which will enable solar energy generation in regions with high potential and its evacuation to demand centres. A joint GGI-OSOWOG Secretariat is being planned to be established at the ISA Secretariat to mobilize political support and render technical support for the initiative.

6.70 ISA has attained a Permanent Observer Status at the UN General Assembly. It has signed a Memorandum of Understanding with UNFCCC at COP 26 to support ISA membership in developing a roadmap for, and implementing, their respective NDCs under the Paris Agreement.

6.71 ISA is mandated to facilitate mobilization of USD 1 trillion in solar investments by 2030 for massive scale-up of solar energy deployment. The Strategic Plan of the ISA for 2021-2026 identifies three key global issues – Energy Access, Energy Security, and Energy Transition. In this regard, ISA has launched eight thematic programmes to address the above issues and an overarching programme to facilitate mobilization of affordable finance for large-scale deployment of solar energy across ISA membership. ISA supports its membership across four pillars encompassing programmatic support, capacity building and ecosystem readiness, risk mitigation instruments, and analytics and advocacy.

Coalition for Disaster Resilient Infrastructure

6.72 India's call for promoting disaster resilience of infrastructure through the Coalition for Disaster Resilient Infrastructure (CDRI) has been receiving global attention. Since CDRI's launch in September 2019, its membership has expanded to 28 countries and seven multilateral organizations, with several member countries committing to provide technical assistance and financial resources. In addition to India's seed funding of USD 70 million, the United Kingdom, United States and the Netherlands have pledged GBP 1 million, USD 9.2 million and 100,000 Euro respectively for CDRI's programmes and projects.

6.73 In March 2021, the Hon'ble Prime Ministers of India, UK, Italy and Fiji launched the third International Conference on Disaster Resilient Infrastructure (ICDRI), which discussed key global issues around resilience of critical infrastructure sectors such as power, telecommunications and health as well as urban infrastructure systems and disaster risk financing.

6.74 In November 2021, the Hon'ble Prime Ministers of India, UK, Australia, Fiji, Jamaica and Mauritius launched the Infrastructure for Resilient Island States (IRIS). This is a dedicated initiative for Small Island Developing States (SIDS) that provides quality technical and financial services to make SIDS infrastructure resilient to climate change and disaster events. India has pledged USD 10 million, while Australia and the UK have pledged AUD 10 million GBP 7.3 million respectively for the IRIS initiative.

6.75 Further, CDRI has launched two other initiatives. CDRI's Global Flagship Report on Disaster and Climate Resilient Infrastructure aims to engage and focus global attention on the critical and multi-faceted challenges posed to disaster and climate-resilient infrastructure. DRI Connect is a "network of networks" enabling stakeholder access to knowledge resources and collaborative opportunities with their peers and other actors. These initiatives are in addition to CDRI's ongoing programmes on enhancing the power sector's resilience in Odisha and the global study on disaster resilience of airports.

Leadership Group for Industry Transition (LeadIT Group)

6.76 LeadIT was launched by India and Sweden, with the support of the World Economic Forum at the UN Climate Action Summit in New York in September 2019, as one of the nine action tracks identified by the UN Secretary-General to boost climate ambitions and actions to implement the Paris Agreement. In November 2021, the Joint Ministerial Statement released at the Leadership Summit called countries and companies to come out with roadmaps for deep reductions in emissions across all heavy industries and value chains in the coming decade.

CONCLUSION

6.77 India's performance on the NITI Aayog SDG India Index has improved from an overall score of 60 in 2019-20 to 66 in 2020-21. India has also been making significant strides in increasing its forest area, ranking third globally in net gain in forest area during the decade (2010-20). Much of India's increase in forest cover during 2011-21 is attributed to enhancement in very dense forest cover, which rose by approximately 20 per cent during the period. Open forest cover also improved by seven per cent during the period. Going forward, there is need to further improve forest and tree cover. Social forestry could also play a significant role in this regard.

6.78 States/UTs need to improve management of its ground water resources through improving its recharge and by stemming its over-exploitation, and to prevent the critical and semi-critical assessment units from further worsening.

6.79 There is a greater thrust on climate action following the announcement of India's target of becoming Net Zero by 2070. Climate finance will remain critical to successful climate action by developing countries, including India.

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Agriculture & Food Management

07
CHAPTER

The agriculture sector has experienced buoyant growth in the past two years. The sector, which is the largest employer of workforce, accounted for a sizeable 18.8 per cent (2021-22) in Gross Value Added (GVA) of the country registering a growth of 3.6 per cent in 2020-21 and 3.9 per cent in 2021-22. Growth in allied sectors including livestock, dairying and fisheries has been the major drivers of overall growth in the sector.

The measures taken by the Government to augment production and domestic supply of oilseeds and edible oils, interventions made in the sugar sector and promotion of crop diversification are examined. The need for sustainable agriculture through water conservation in irrigation and natural farming and need to promote research and development to improve crop productivity, mechanization, etc. is highlighted. It also discusses how Minimum Support Price (MSP) policy is being used to promote crop diversification. In addition to this, some important findings of the latest Situation Assessment Survey (SAS) have also been discussed. The net receipts from crop production alone have increased by 22.6 per cent as compared to the previous SAS Report of 2014 although there is a visible diversification in the sources of income of the farmers.

Allied sectors including animal husbandry, dairying and fishing are steadily emerging to be high growth sectors. The livestock sector has grown at a CAGR of 8.15 per cent over the last five years ending 2019-20. As revealed by the latest SAS, the sector has been a stable source of income across groups of agricultural households accounting for about 15 per cent of their average monthly income. This improvement in the contribution of allied sectors is in line with the recommendations of the Committee on Doubling Farmers' Income which has suggested a greater focus on allied sectors to improve farmers' income. A review of the allied sectors along with the recent programmes and initiatives to harness its potential has also been presented.

The Government has placed focus on the food processing sector, which is not only a major market of agriculture produce but is also a significant employer of the surplus workforce engaged in agriculture. Government therefore facilitates food processing through various measures of infrastructure development, subsidised transportation and support for formalization of micro food enterprises.

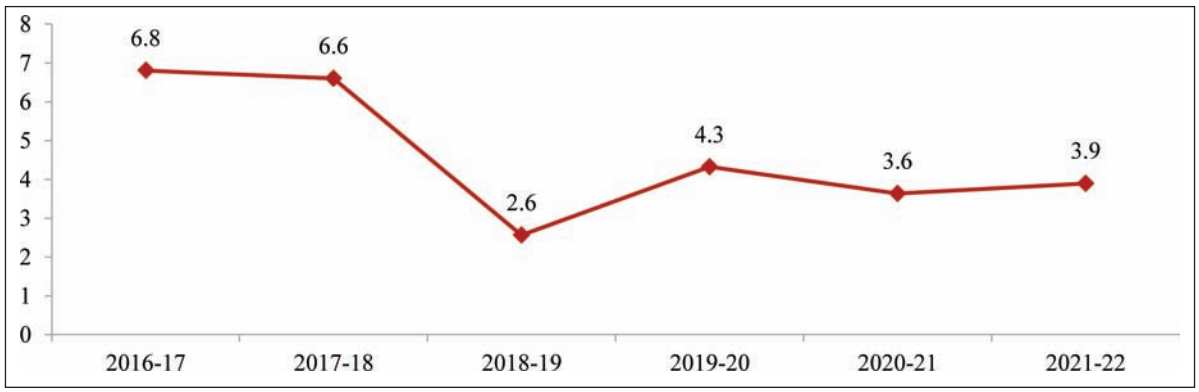
India runs one of the largest food management programmes in the world. The Government has further extended the coverage of food security network through additional provisions

of foodgrains through the schemes like PM Gareeb Kalyan Yojana (PMGKY). A review of India's food management programme including food procurement, allocation, storage and the issue of food subsidy along with various Government measures for effective food and nutritional security is also presented at length in the chapter. The chapter ends with a review of the performance of fertilizer sector.

INTRODUCTION

7.1 The agriculture and allied sectors grew at a positive growth rate of 3.6 per cent during 2020-21. This became possible due to good monsoon and various government measures to enhance credit availability, improve investments, create market facilities, promote infrastructure development in the agriculture sector and increase provision of quality inputs to the sector. The timely intervention in the form of Atma Nirbhar Bharat (ANB) Abhiyan coupled with other growth promoting schemes (ANB and other schemes are discussed under respective sections) have further helped agriculture to achieve an improved growth of 3.9 per cent in 2021-22. Figure 1 presents the performance of the agriculture and allied sectors for the last five and half years.

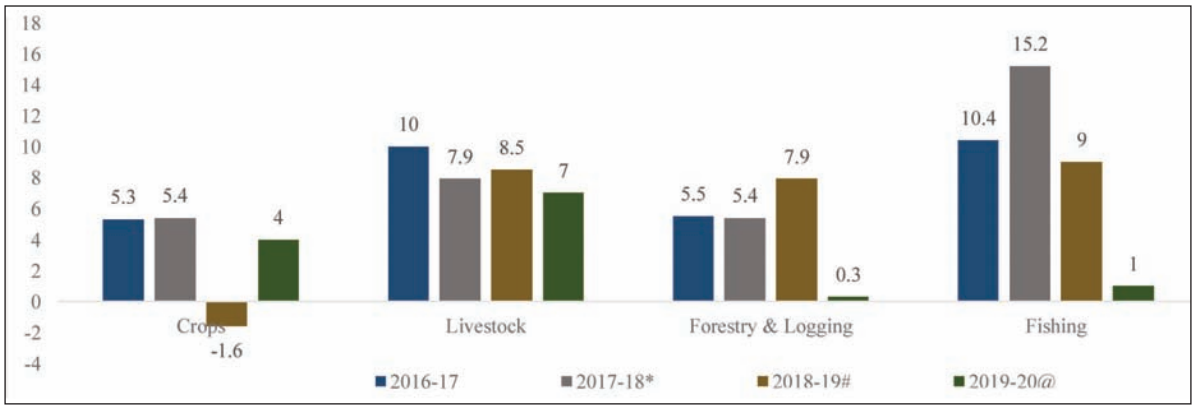
Figure 1: Growth of Agriculture and Allied Sectors (per cent)



Source: First Advance Estimates of National Income, 2021-22

7.2 The growth of agriculture & allied sectors as shown in the Figure 1 should be read with Figure 2 depicting the growth in the four constituents of agriculture & allied sectors namely crops, livestock, forestry & logging and fishing & aquaculture. It is observed that livestock and fisheries have been experiencing buoyant growth and has helped the sector perform well. For instance in 2018-19 the growth in the agriculture was buoyed by the performance of livestock and fisheries even though the growth of GVA for crops was -1.6 per cent.

Figure 2: Growth of GVA of Agriculture & Allied Sector (at 2011-12 prices)

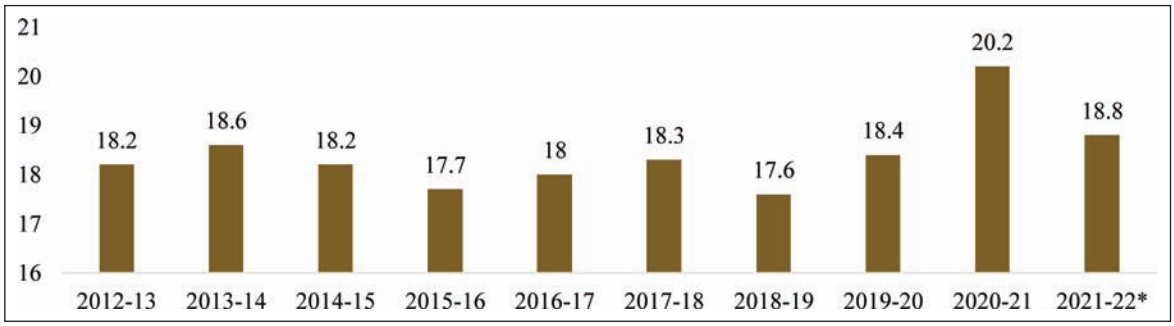


Source: Based on data received from Department of Agriculture & Farmers Welfare (DAFW).
*Third revised estimate, #second revised estimate, @ First Revised Estimates released on 29th January, 2021.

GROSS VALUE ADDED (GVA) IN AGRICULTURE

7.3 A trend in the percentage share of agriculture and allied sectors to total GVA of the economy at current prices for the last ten years is presented in Figure 3. The share of the sector in total GVA of the economy has a long-term trend of around 18 per cent. The share of the agriculture & allied sector in total GVA, however, improved to 20.2 per cent in the year 2020-21 and 18.8 per cent in 2021-22.

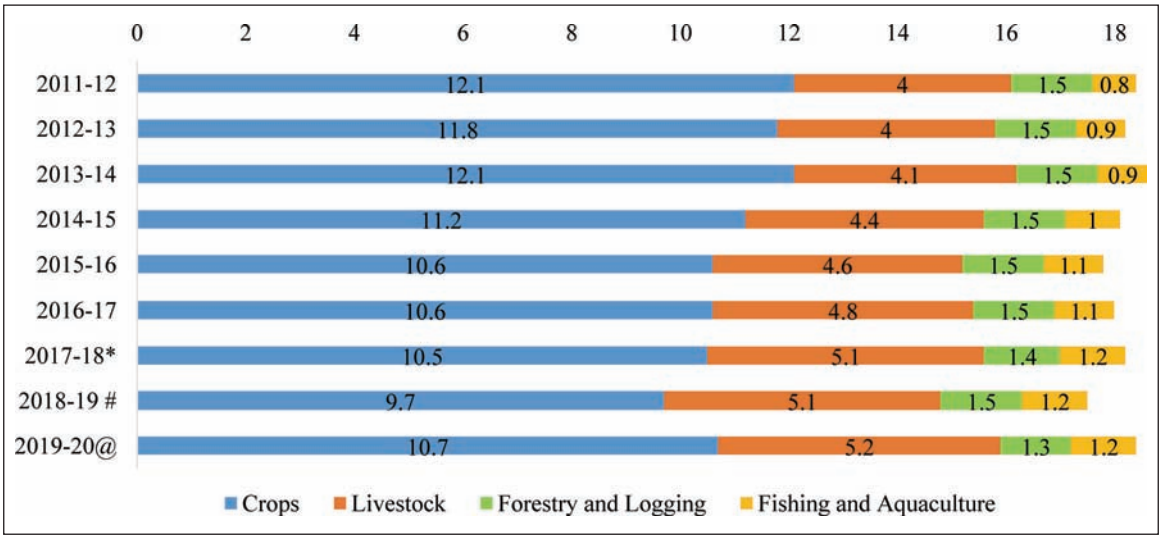
Figure 3: Percentage Share of GVA of Agriculture & Allied Sector to Total GVA (at current prices)



Source: Based on data of DAFW.
*As per 1st Advance Estimates of National Income, 2021-22.

7.4 A trend in the distribution of share of GVA of agriculture among its constituents is presented in Figure 4. Higher growth in allied sectors as compared to crop sector has obvious implications in terms of increasing importance of the former in total agricultural GVA vis-a-vis the later. It may be observed that the share of the livestock and fishing & aquaculture in total agricultural GVA has been improving during the period. Recognising the increasing importance of allied sectors, the Committee on Doubling Farmers' Income (DFI, 2018) considers dairying, livestock, poultry, fisheries and horticulture as engines of high growth and has recommended a focussed policy with a concomitant support system.

Figure 4: Percentage Share of GVA of Crop & Allied Sectors in Total Agriculture GVA (at current prices)



Source: Based on data of DAFW.

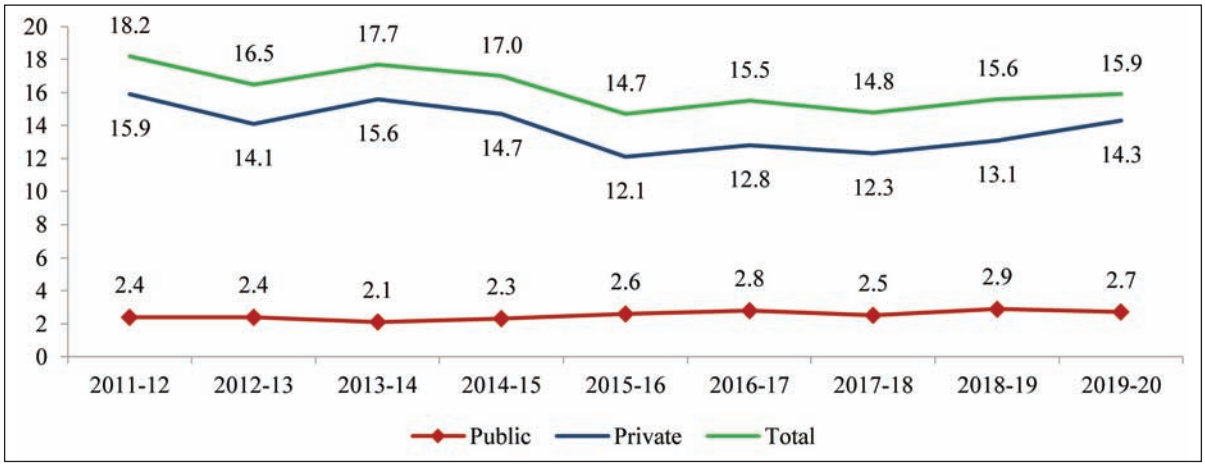
Investment in Agriculture and Allied Sectors

7.5 Investment is critical to the growth of a sector. The Gross Capital Formation (GCF) in agriculture and allied sectors relative to GVA in the sector has been showing a fluctuating trend as shown in Figure 5. Fluctuation in the GCF in the sector arises mainly because of wide fluctuations in private investment in agriculture and allied sectors. As may be observed in the Figure 5, while public investment has remained stable between 2-3 per cent over the years, the private investment has fluctuated and the total agricultural GCF has moved in sync with variation in private investment.

7.6 Recognising that there exists a direct correlation between capital investments in agriculture and its growth rate, there should be a focused and targeted approach to ensure higher public and private investment in the sector. Higher access to concessional institutional credit to farmers and greater participation of private corporate sector, whose investment rates are currently as low as 2 to 3 per cent in agriculture[1], may help in improving private investment in agriculture. Private corporate investments need to be crowded in by offering an appropriate policy framework and increase in public investment along the entire agricultural value system.

1. Report of the Doubling Farmers' Income, 2018.

Figure 5: Percentage Share of GCF in Agriculture and Allied Sectors Relative to Its GVA (at 2011-12 basic prices)

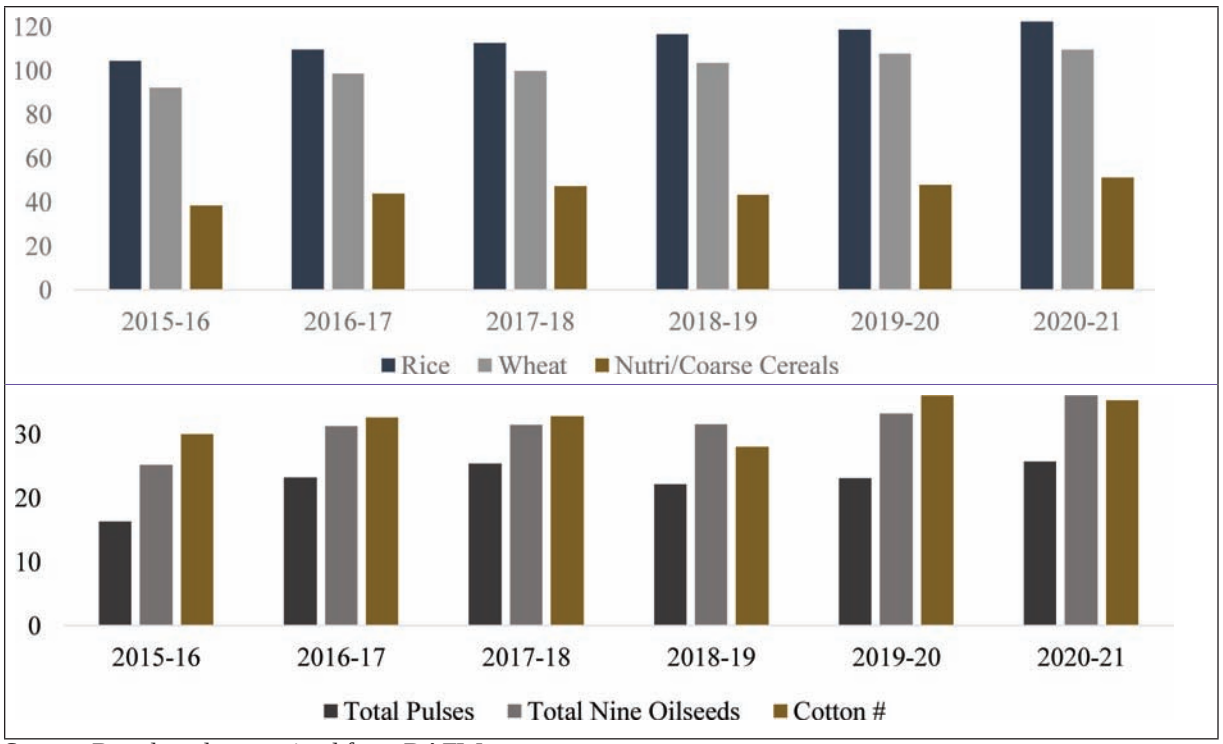


Source: Based on data of DAFW and Agricultural Statistics at a Glance, 2020.

Agricultural Production

7.7 As per Fourth Advance Estimates for 2020-21, total foodgrain production in the country is estimated at a record 308.65 million tonnes which is 11.15 million tonnes higher than that during 2019-20. The production of rice, wheat and coarse cereals has increased at compound annual growth rates (CAGR) of 2.7, 2.9 and 4.8 per cent respectively during last six years i.e. 2015-16 to 2020-21. The CAGR for pulses, oilseeds and cotton has been 7.9, 6.1 and 2.8 per cent, respectively during the same period. Figure 6 depicts the trend in agricultural production over the past six years.

Figure 6: Trend in Agricultural Production (Million Tonnes)



Source: Based on data received from DAFW.
Million bales of 170 kg each.

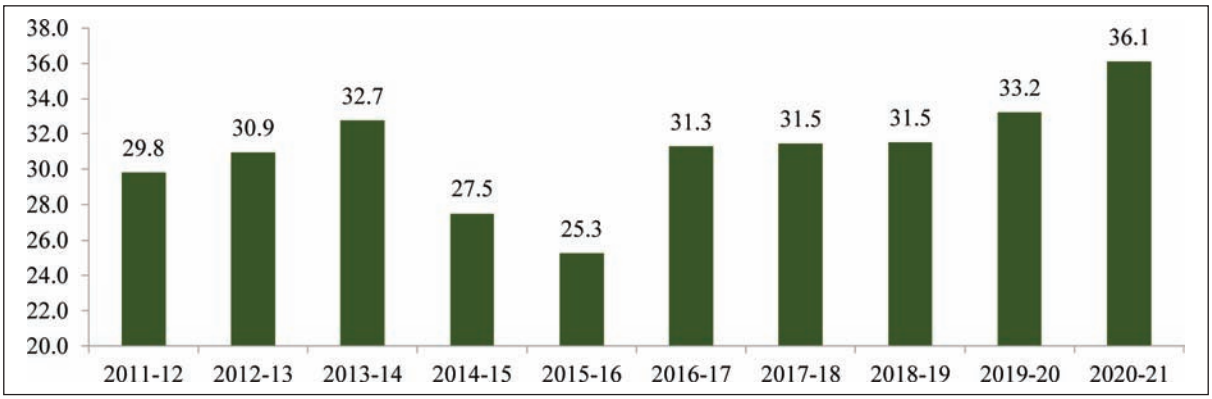
7.8 As per the First Advance Estimates for 2021-22 (kharif only), total foodgrain production in the country is estimated at a record level of 150.50 million tonnes which is higher by 0.94 million tonnes than kharif foodgrain production of 2020-21.

Edible Oils

7.9 India is one of the major oilseeds growing country. As may be seen from the Figure 7, the oilseed production in India has steadily increased since 2016-17 onward after showing a fluctuating trend prior to that. The oilseed production in India has grown by almost 43 per cent from 2015-16 to 2020-21. The oil production in India has however lagged behind its consumption necessitating import of edible oils (Figure 8).

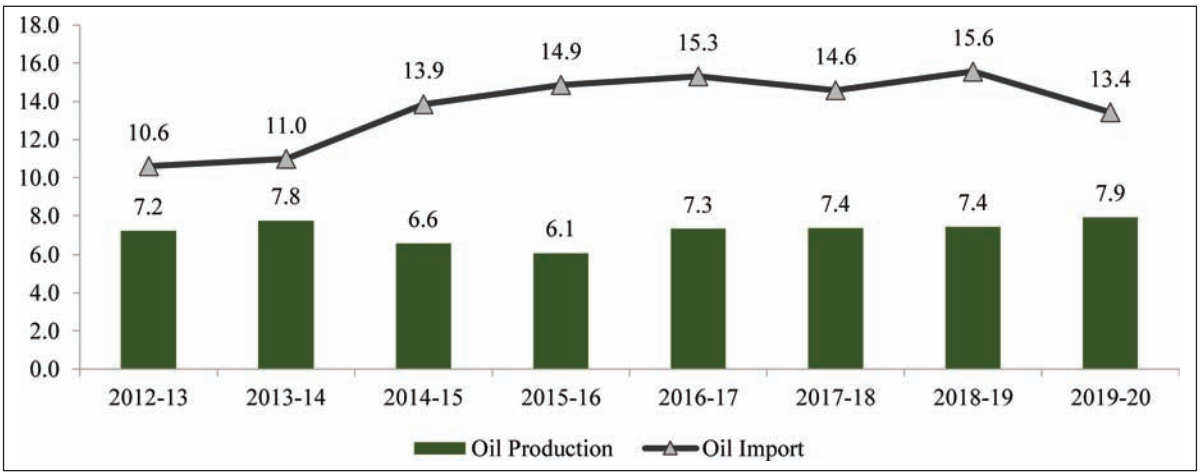
7.10 India is the world's second largest consumer and number one importer of vegetable oil. As urbanisation increases in developing countries, dietary habits and traditional meal patterns are expected to shift towards processed foods that have a high content of vegetable oil. Vegetable oil consumption in India is, therefore, expected to remain high due to high population growth and consequent urbanisation. As per the OECD-FAO Agricultural Outlook 2021-2030, India is projected to maintain a high per capita vegetable oil consumption growth of 2.6 per cent per annum reaching 14 kg/capita by 2030 necessitating a high import growth of 3.4 per cent per annum.

Figure 7: Trend in Production of Oilseeds (Million Tonnes)



Source: Based on data of 4th Advanced Estimates as on Directorate of Economics & Statistics Website.

Figure 8: Production & Import of Oil (Million Tonnes).



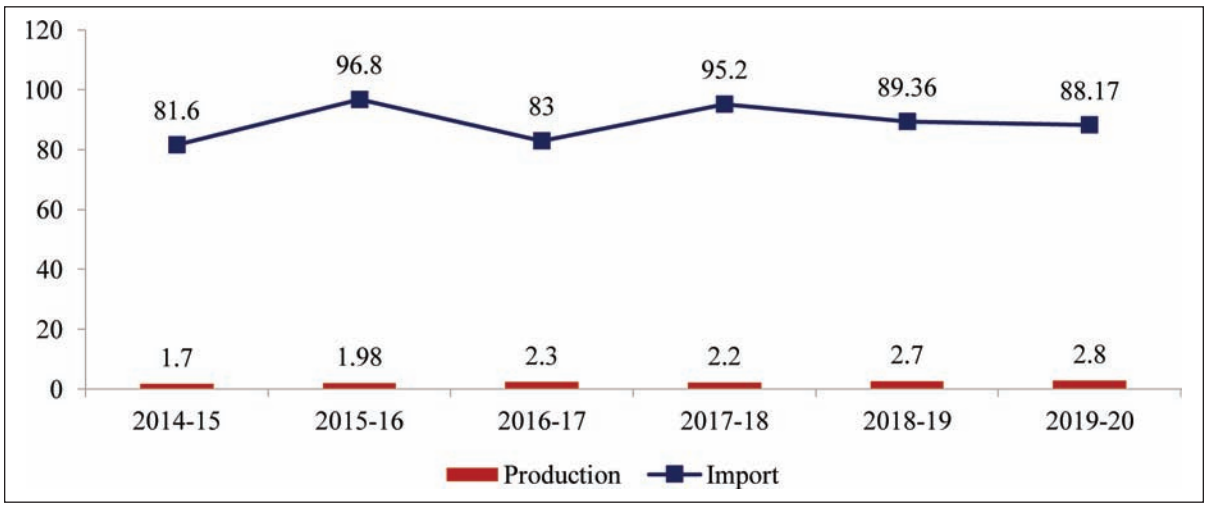
Source: Based on data of Agricultural Statistics at Glance, 2020.

7.11 In view of the persistently high import of edible oil, increase in oil production has been a priority for the Government. The Government is promoting the production and productivity of oilseeds through the centrally sponsored scheme of National Food Security Mission: Oilseeds (NFSM-Oilseeds) from 2018-19 onwards in all districts of India. Under this scheme, interventions such as production of foundation and certified seed and distribution of certified seeds and seed minikits of latest high yielding varieties are undertaken. Under the NFSM (Oilseeds), Government of India has set up 36 oilseeds seed hubs during 2018-19 and 2019-20 with an objective to increase the availability of high yielding quality seed. For Kharif 2021, a total of 9.25 lakh number of oilseed mini kits of high yielding varieties have been allocated for distribution in all the major oilseed growing states. Also, Government has through MSP regime been providing price signal for crop diversification towards production of oil seed (discussed later in the chapter).

7.12 Further, in August, 2021, National Mission on Edible Oils - Oil Palm (NMEO-OP) has been launched to augment the availability of edible oil in the country by harnessing area expansion and through price incentives. Under the scheme, for the first time, Government will give a price assurance to the oil palm farmers for the Fresh Fruit Bunches (FFBs). This will be known as the Viability Price (VP) which will protect the farmers from the fluctuations of the international crude palm oil (CPO) prices.

7.13 India has enormous potential for cultivation of oil palm and production of CPO. At present only 3.70 lakh hectares is under oil palm cultivation. Oil palm produces 10 to 46 times more oil per hectare compared to other oilseed crops and has yield of around 4 tons oil per ha. Given the fact that that even today around 98 per cent of CPO is being imported (production and import of palm oil are shown in Figure 9); the NMEO-OP may be considered a major initiative of the Government. The scheme aims to cover an additional area of 6.5 lakh hectares for oil palm till 2025-26 and thereby reach the target of 10 lakh hectares ultimately. Also, the scheme targets the production of CPO to go up to 11.20 lakh tonnes by 2025-26 and up to 28 lakh tonnes by 2029-30.

Figure 9: Production and Import of Palm Oil (Lakh Ton)



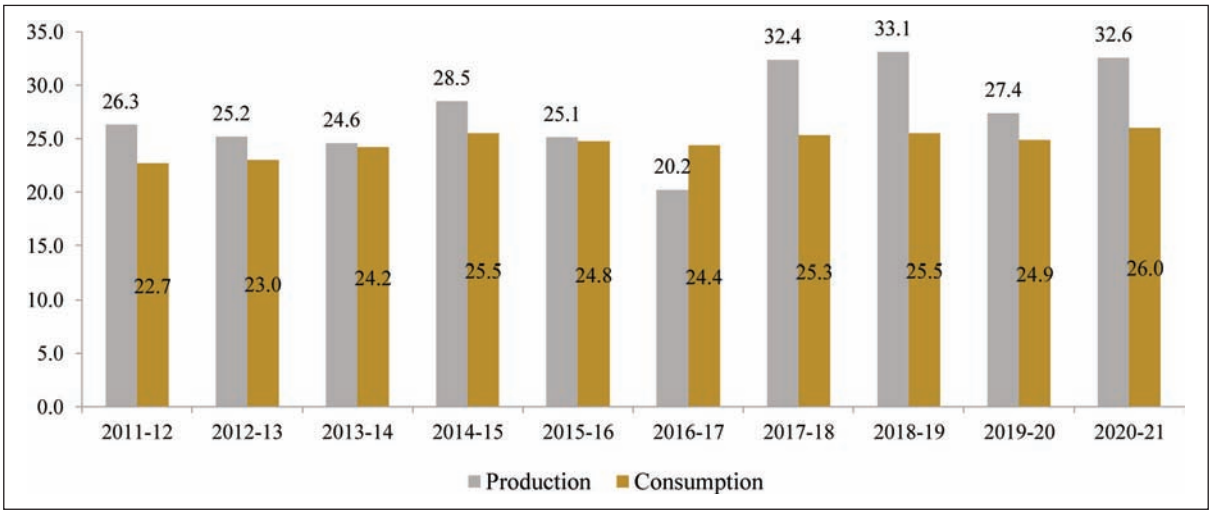
Source: Based on data of Agriculture Statistics at Glance, 2020 and DAFW.

Sugar Sector

7.14 Significance of sugarcane and sugar industry for India's economy can be gauged from the fact that it is the country's second largest agro-based industry, next to cotton. It impacts the livelihood of over 5 crore farmers and their dependents. India is the largest consumer and the second-largest producer of sugar in the world. Average annual production of sugarcane is around 35.5 crore tonnes which is used to produce around 3 crore tonnes of sugar. The domestic consumption is estimated to be around 2.6 crore tonnes in 2020-21. Over the years, India has become a sugar surplus nation as reflected from the trend of sugar production and consumption in Figure 10. Since 2010-11, production has outstripped consumption except in 2016-17.

7.15 This has been possible because of various measures undertaken by Government. For example, the interest of the farmers is protected by Fair and Remunerative Price (FRP)[2] which has doubled in a span of ten years (Figure 11). In addition, some state governments announce State Advised Price (SAP) at levels higher than FRP. Additionally, sugar mills that buy sugarcane are mandated to purchase crops from farmers within a specified radius known as the Cane Reservation Area. In this way, sugarcane farmers are insured and protected against price risk.

Figure 10: Production and Consumption Levels of Sugar (Million Tonnes)

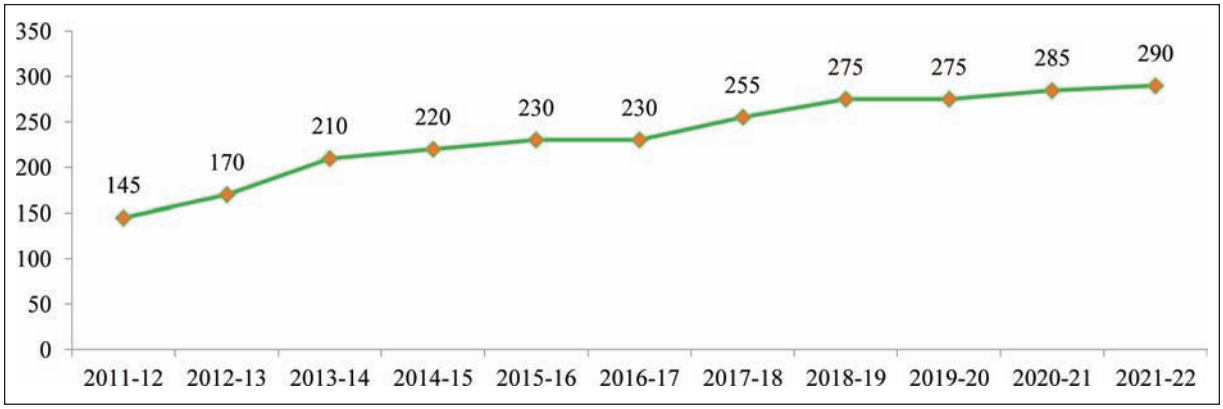


Source: Based on data of CACP Report on Sugarcane.

7.16 Moreover, in order to handle the surplus production and enhance liquidity of mills, the Government has taken various steps such as incentivising sugar mills to divert excess sugar cane/sugar to ethanol production, providing financial assistance for transport to sugar mills to facilitate export of sugar, etc. About 70 LMT of sugar has been exported in sugar season 2020-21 in comparison to 59.60 LMT of sugar export in sugar season 2019-20. Further, contracts of about 30 LMT for export of sugar have already been signed in the sugar season 2021-22. Moreover, in the past four sugar seasons ending 2020-21, revenue of about ₹ 35000 crore has been generated by sugar mills/distilleries from sale of ethanol to Oil Marketing Companies which has helped in clearing cane price arrears of farmers..

2. FRP is the minimum price at which sugarcane is to be purchased by sugar mills from farmers.

Figure 11: Trend in Fair & Remunerative Price (₹ /quintal)



Source: Based on data of CACP website.

Price Policy: Minimum Support Price (MSP)

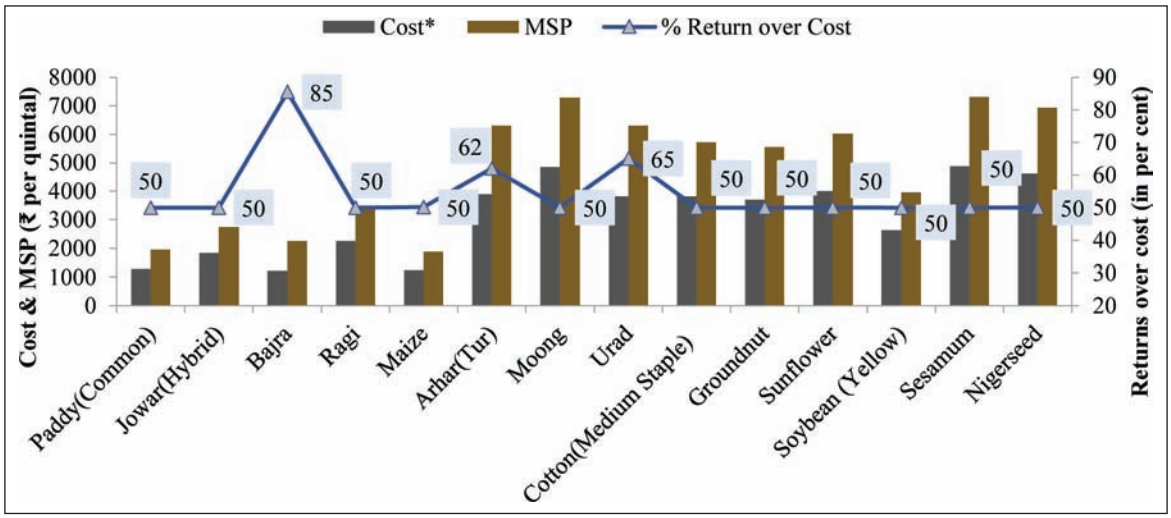
7.17 The Government's price policy for major agricultural commodities seeks to ensure remunerative prices to the growers for their produce with a view to encourage higher investment and production and thereby to safeguard the interest of consumers by making available supplies at reasonable prices. The Government fixes MSP of 22 mandated agricultural crops on the basis of the recommendations of Commission for Agricultural Costs & Prices (CACP) and after due consideration of the views of State Governments and the concerned Central Ministries/ Departments. The 22 mandated crops include 14 Kharif crops viz. paddy, jowar, bajra, maize, ragi, tur (arhar), moong, urad, groundnut, soybean (yellow), sunflower seed, sesamum, nigerseed, cotton and 6 Rabi crops viz. wheat, barley, gram, masur (lentil), rapeseed and mustard, safflower and 2 commercial crops viz. jute and copra. In addition to that, MSP for toria and de-husked coconut are also fixed on the basis of MSPs of rapeseed & mustard and copra respectively.

7.18 While recommending MSPs, CACP considers important factors like cost of production, overall demand-supply conditions, domestic and international prices, inter-crop price parity, terms of trade between agricultural and non-agricultural sectors, the likely effect on the rest of the economy, besides ensuring rational utilization of land, water and other production resources and a minimum of 50 per cent as the margin over cost of production.

7.19 The Union Budget for 2018-19 had announced the pre-determined principle to keep MSP at the level of one and half times of the cost of production. Accordingly, Government had increased the MSP for all mandated Kharif, Rabi and other commercial crops with a return of at least 50 per cent over all India weighted average cost of production from the agricultural year 2018-19 onwards.

7.20 In line with the same principle, Government has announced the increase in MSP for all mandated kharif crops of year 2021-22. The highest absolute increase in MSP over the previous year has been recommended for sesamum (₹ 452 per quintal) followed by tur and urad (₹ 300 per quintal each). In case of groundnut and nigerseed, there has been an increase of ₹ 275 per quintal and ₹ 235 per quintal respectively in comparison to last year. The expected returns to farmers over cost of production is estimated to be highest in case of bajra (85 per cent). For urad and tur, return to farmers over cost of production is estimated at 65 per cent and 62 per cent respectively. For the rest of the crops, return to farmers is estimated to be at least 50 per cent (Figure 12).

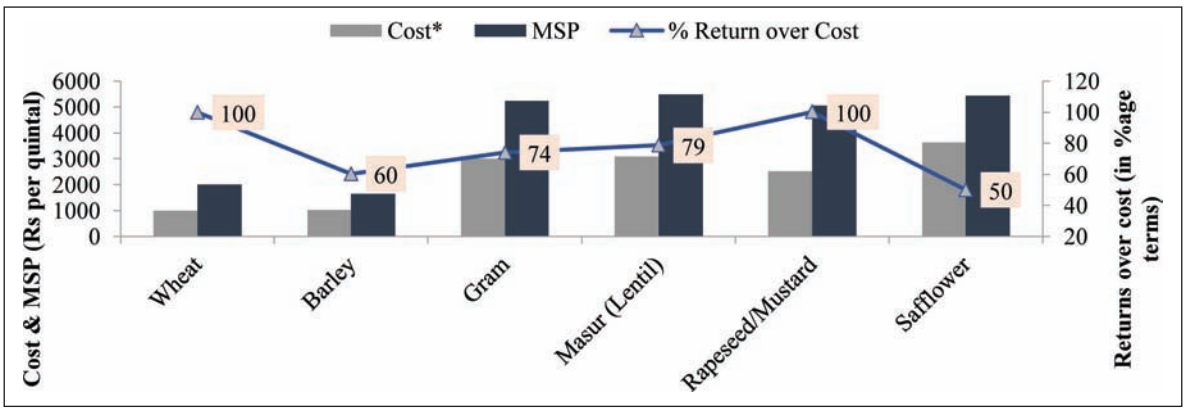
Figure 12: Cost, MSP & Returns of Kharif Crops for the year 2021-22.



Source: DAFW

7.21 Government also announced the MSPs for all mandated Rabi crops for Rabi Marketing Season 2021-22. In view of nutritional requirements, changing dietary pattern and to achieve self-sufficiency in pulses and oilseeds production, the Government has fixed relatively higher MSP for these crops (Figure 13). The highest increase in MSP has been recommended for lentil (masur) and rapeseed & mustard at ₹ 400 per quintal each followed by gram at ₹ 130 per quintal and safflower at ₹ 114 per quintal. The expected returns to farmers over their cost of production are estimated to be highest in case of wheat and rapeseed & mustard at 100 per cent each. For masur (lentil) and gram, return to farmers over cost of production is estimated at 79 per cent and 74 per cent respectively and for barley and safflower, it is 60 per cent and 50 per cent respectively. The differential remuneration is aimed at encouraging crop diversification.

Figure 13: Cost, MSP & Returns of Rabi Crops of year 2021-22



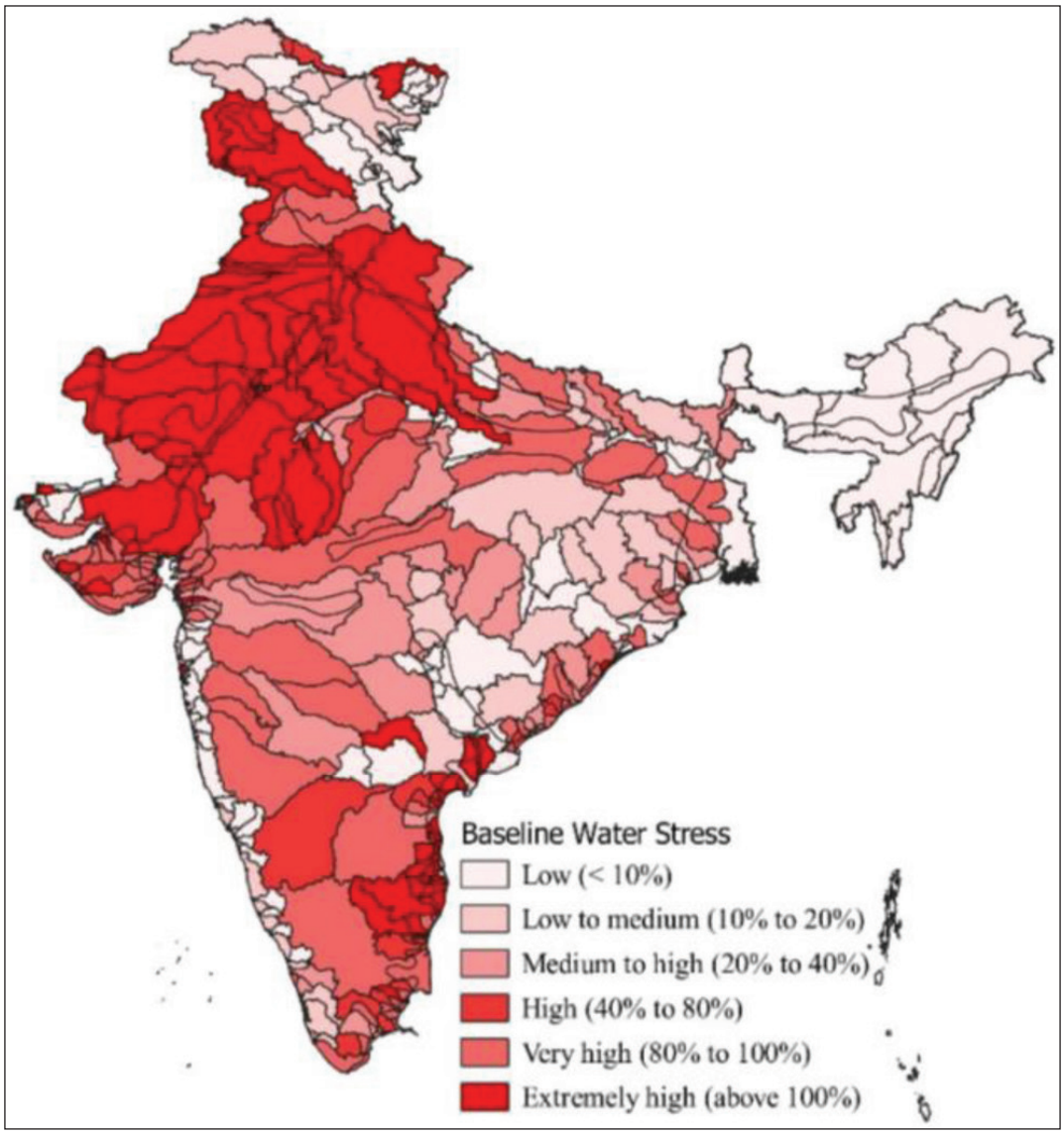
Source: DAFW

Crop Diversification

7.22 Crop diversification can be used as a tool to promote sustainable agriculture, reduction in import dependence and higher incomes for the farmers. The report of the DFI Committee suggests that shifting some area from staple cereals to high value produce can lead to a sizable increase in the returns for farmers. The Report further states that this would also bring in water

use efficiency and sustainability of soil health. The existing cropping pattern is skewed towards cultivation of sugarcane, paddy and wheat which has led to depletion of fresh ground water resources at an alarming rate in many parts of our country. Map 1 shows baseline water stress[3] for different regions of India. It shows that the regions where the crops like paddy, wheat and sugarcane are grown have high to extremely high stress levels.

Map 1: Baseline Water Stress in Various Parts of India in 2015


Baseline Water Stress
Low (< 10%)
Low to medium (10% to 20%)
Medium to high (20% to 40%)
High (40% to 80%)
Very high (80% to 100%)
Extremely high (above 100%)

Source: World Resources Institute

7.23 In view of the above, Crops Diversification Programme (CDP) is being implemented in the original green revolution states viz. Punjab, Haryana and Western UP as a sub scheme of Rashtriya Krishi Vikas Yojana (RKVY) since 2013-14 to shift area under paddy cultivation towards less water requiring crops such as oilseeds, pulses, coarse cereals, nutri cereals, cotton, etc. The CDP also focuses on shifting of areas under tobacco farming to alternative crops/ cropping system in tobacco growing States, namely, Andhra Pradesh, Bihar, Gujarat, Karnataka,

3. Baseline water stress implies the ratio of total annual water withdrawals to total available annual renewable supply

Maharashtra, Odisha, Tamil Nadu, Telangana, Uttar Pradesh and West Bengal with effect from 2015-16. An amount of ₹ 120 crore as Central Share (₹ 110 crore to CDP in Original Green Revolution States and ₹ 10 crore to CDP for replacing tobacco farming) have been earmarked for implementation of the programme during 2021-22.

7.24 Crop diversification in India has been targeted through price policy also. Incentive structure provided under MSP regime leading to variation in return over cost across crops has bearing on crop diversification as well. Figures 14 and 15 show an inter-temporal variation in return in selected crops for both Kharif and Rabi seasons.

Figure 14: Variation in Return over Cost (per cent) for crops across Kharif Marketing Seasons

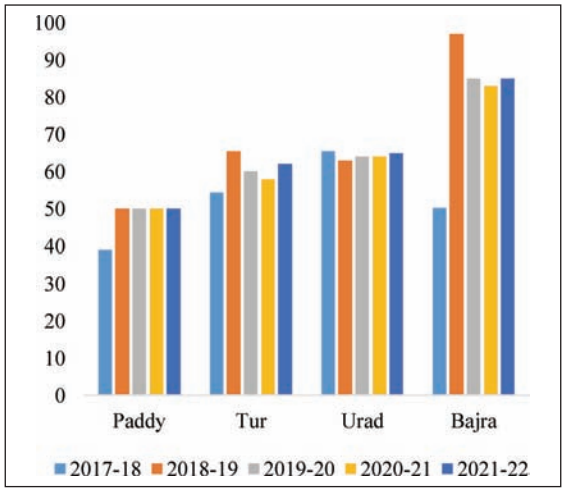
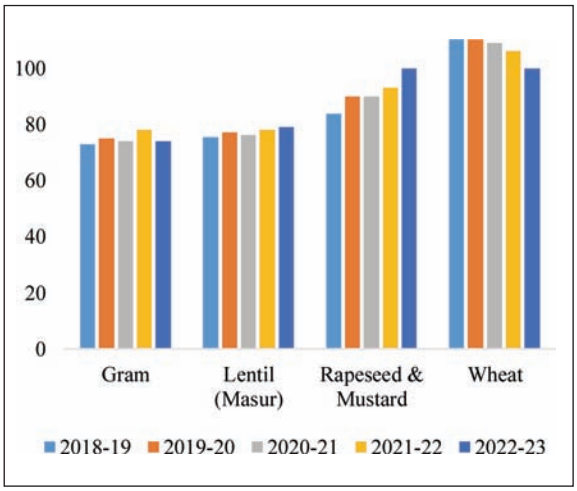


Figure 15: Variation in Return over Cost (per cent) for crops across Rabi Marketing Seasons



Source: Based on data from CACP.

Agricultural Credit

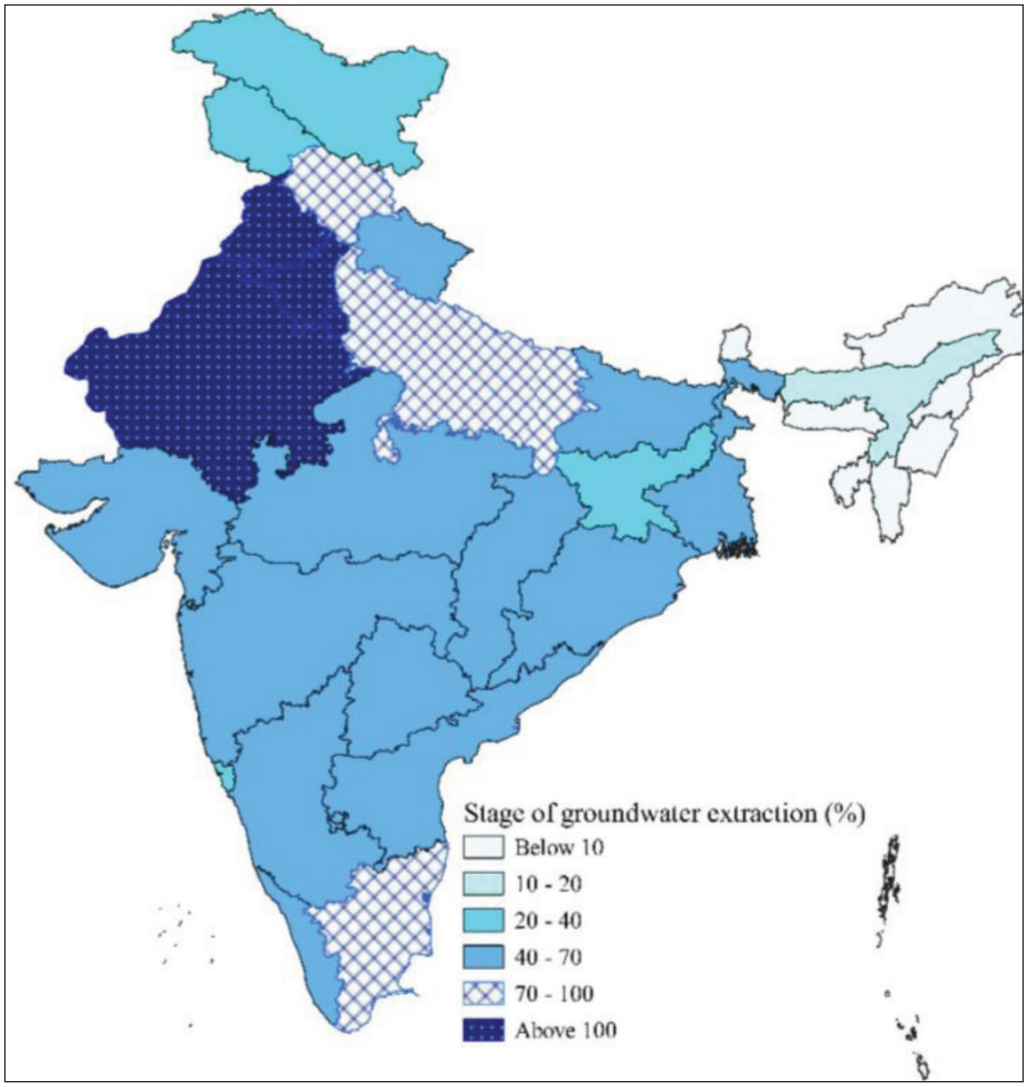
7.25 The agriculture credit flow for the year 2020-21 was ₹ 15,75,398 crore against the target of ₹ 15,00,000 crore for the year. The agriculture credit flow target for 2021-22 has been fixed at ₹ 16,50,000 crore and till 30th September, 2021 against this target a sum of ₹ 7,36,589.05 crore has been disbursed. Moreover, as a part of the ANB announcement, Government announced ₹ 2 lakh crore concessional credit boost to 2.5 crore farmers through Kisan Credit Cards (KCCs). In pursuance of this, as on 17th January 2022, banks have issued KCC to 2.70 crore eligible farmers. Apart from this, to address the credit needs of animal husbandry and fish farmers, the Government of India in 2018-19 extended the facility of KCC to fisheries and animal husbandry farmers to help them meet their working capital needs. In pursuance to this, a total of 67,581 KCCs have been issued to fishers and fish farmers by 17th December, 2021 and over 14 lakh fresh KCCs were sanctioned for animal husbandry and dairying farmers by 10th of December, 2021.

Water and Irrigation

7.26 Water is a critical input for agriculture which accounts for about 80 per cent of the current water use in the country. The share of net irrigated area accounts for about 49 per cent of the total net sown area in the country and out of the net irrigated area, about 40 per cent is irrigated through canal systems and 60 per cent through groundwater.

7.27 The overall stage of ground water development (ratio of annual ground water draft and net annual ground water availability) in the country is 63 per cent[4]. This ratio which signifies the rate of extraction of ground water, is very high (more than 100 per cent) in the states of Delhi, Haryana, Punjab and Rajasthan. Himachal Pradesh, Tamil Nadu, Uttar Pradesh and UTs of Chandigarh and Puducherry falls in the medium category with the ratio ranging between 70-100 per cent (Map 2). These States may need to focus on both medium and long term ground water recharge and conservation plans.

Map 2: State of groundwater extraction in 2020 (in per cent)*



Source: Ground water yearbook, 2019-20

* Assessment as on 2013 has been considered for the state of West Bengal and data for erstwhile state of J&K is used for UTs of J&K and Ladakh.

7.28 Increased coverage under micro irrigation can be the most effective mode of water conservation. With the objective of facilitating the States in mobilising resources for expanding coverage of micro irrigation, a Micro Irrigation Fund (MIF) with corpus of ₹ 5000 crore was created with National Bank for Agriculture and Rural Development (NABARD) during 2018-

4. Ground water yearbook, 2019-20

19. As on 01.12.2021, projects with loans under MIF amounting to ₹ 3970.17 crore have been approved for 12.81 lakh ha of Micro Irrigation area. Moreover, the Government of India is promoting micro irrigation viz. Drip and Sprinkler Systems in the Country for enhancing water use efficiency at farm level under the Per Drop More Crop component of Pradhan Mantri Krishi Sinchayee Yojana (PMKSY-PDMC) from 2015-16. Under PMKSY-PDMC, as on 14.12.2021, total area of 59.37 lakh ha has been covered under micro irrigation in the country from 2015-16.

Agricultural Marketing

7.29 Wholesale agricultural marketing is undertaken by the network of 6946 regulated wholesale markets, set up under the provision of respective State Agricultural Produce Market Committee (APMC) Act. The Government of India has been working continuously and has taken several concrete steps to link the farmers with markets in order to help the farmers in trading and realising competitive and remunerative prices for their produce. For example, APMCs, have been recognized as one of the eligible entities under Agriculture Infrastructure Fund (AIF) to further strengthen the infrastructure in APMC mandis. All loans under the AIF have interest subvention of 3 per cent per annum up to a limit of ₹ 2 crores. This subvention is available for a maximum period of 7 years. APMCs are eligible for multiple projects (of different infrastructure types) within their designated market area. In such cases, interest subvention for a loan up to ₹ 2 crores will be provided for each project of different infrastructure types e.g. cold storage, sorting, grading and assaying units, silos, etc. within the designated market area of the APMC.

7.30 Further, Government of India launched National Agriculture Market (e-NAM) Scheme in 2016 with the objective of creating online transparent competitive bidding system to facilitate farmers with remunerative prices for their produce. Under the e-NAM Scheme, Government is providing free software and assistance of ₹ 75 Lakh per APMC mandi for related hardware including quality assaying equipment and creation of infrastructure like cleaning, grading, sorting, packaging and compost unit etc. As on 1st of December, 2021, 1000 mandis of 18 States and 3 UTs have been integrated with e-NAM platform.

7.31 The Government of India has launched a Central Sector Scheme of "Formation and Promotion of 10,000 Farmer Producer Organizations (FPOs)" to form and promote 10,000 new FPOs till 2027-28. Under the scheme, the formation and promotion of FPO is based on Produce Cluster Area approach and specialized commodity-based approach. While adopting cluster-based approach, formation of FPOs focuses on "One District One Product" to enable product specialization. One of the objectives of the Scheme is to enhance productivity through efficient, cost-effective and sustainable resource use and realize higher returns through better liquidity and market linkages for their produce and to become sustainable through collective action. As of January 2022, a total of 1963 FPOs have been registered under the scheme. The Government has established a full-fledged Ministry of Cooperation in July, 2021 with a view to provide greater focus to the cooperative sector.

Box 1: Sweet Revolution

Keeping in view the importance of beekeeping as part of the Integrated Farming System (IFS) in the country, government approved the allocation of ₹ 500 crore for National Beekeeping & Honey Mission (NBHM) for three years (2020-21 to 2022-23). The mission was announced as a part of the

ANB scheme. NBHM aims for the overall promotion & development of scientific beekeeping in the country to achieve the goal of 'Sweet Revolution' which is being implemented through National Bee Board (NBB). Total 45 projects for assistance of ₹ 88.87 crores have been approved/sanctioned for funding under NBHM as on 17.12.2021.

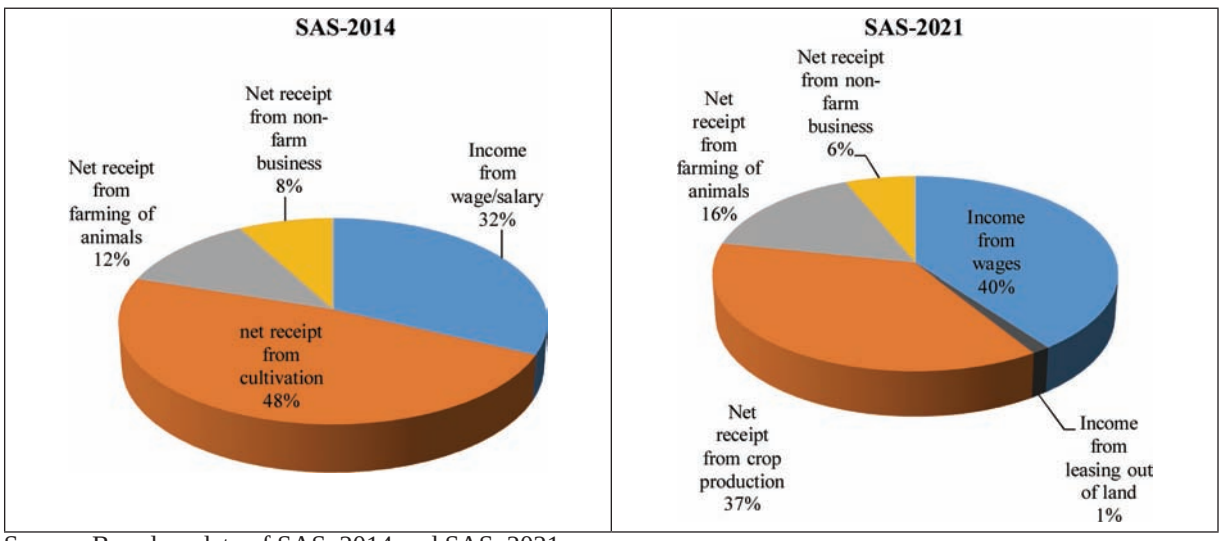
Beekeeping is an agro-based activity which is being undertaken by farmers/ landless labourers in rural area as a part of the IFS. Beekeeping has been useful in pollination of crops, thereby, increasing income of the farmers/beekeepers by way of increasing crop yield and providing honey and other high value beehive products, viz.; bee wax, bee pollen, propolis, royal jelly, bee venom, etc. Diversified agro climatic conditions of India provide great potential and opportunities for beekeeping/honey production and export of honey. India's export of honey has increased by about 110 per cent between 2013-14 to 2019-20.

SITUATION ASSESSMENT SURVEY

7.32 National Statistical Office (NSO) in its 77th round of survey, conducted during the period 1st January 2019 to 31st December 2019, carried out a survey on "Land and Livestock Holdings of Households and Situation Assessment of Agricultural Households" (henceforth referred as SAS in this Chapter) in the rural areas of India. The Report was released in September, 2021. The last SAS was published in 2014.

7.33 The SAS reports, apart from various other socio-economic aspects of agricultural households, they also reveal insights on their income and its sources. The SAS, 2021 reveals that the average monthly income per agricultural household, as per paid out expenses approach, works out to be ₹ 10218. The average monthly income per agricultural household was ₹ 6426 as per the last SAS Report of 2014 estimated by the same approach. The sources of the incomes as per the two SAS Reports are presented in Figure 16.

Figure 16: Composition of Average Monthly Income of Agricultural Households

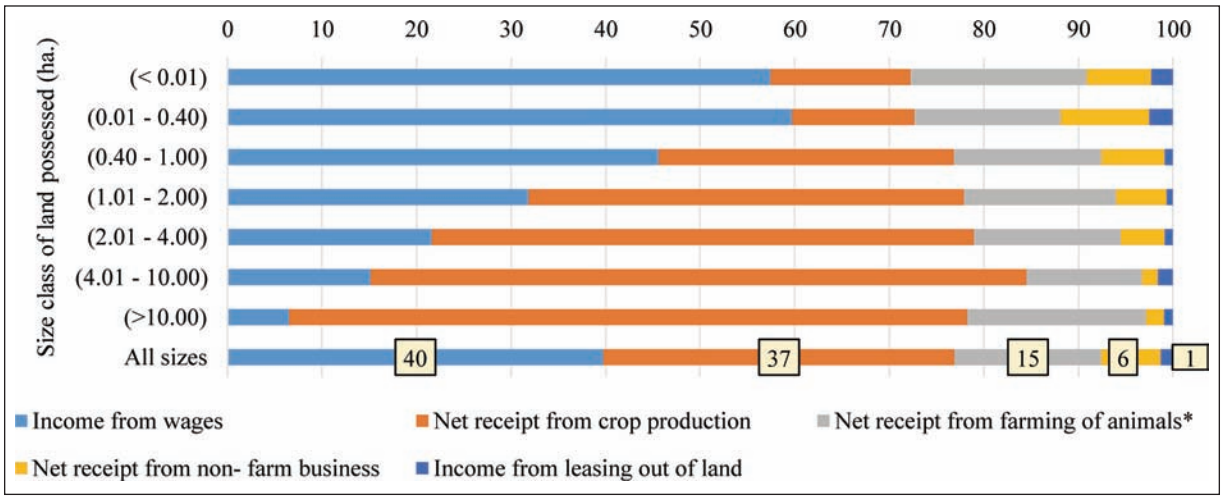

SAS-2014
Net receipt from non-farm business 8%
Income from wage/salary 32%
Net receipt from farming of animals 12%
net receipt from cultivation 48%
SAS-2021
Net receipt from non-farm business 6%
Net receipt from farming of animals 16%
Income from wages 40%
Net receipt from crop production 37%
Income from leasing out of land 1%

Source: Based on data of SAS, 2014 and SAS, 2021.

7.34 The SAS Report, 2021 also shows class-wise distribution of sources of incomes (Figure 17) among the agricultural households. The net receipts from the crop production alone has

increased by 22.6 per cent as compared to the previous SAS Report of 2014. The net receipts from other sources increased by 92.6 per cent with increase in overall net receipts at 59 per cent. The crop income with a share of 37 per cent continues to be an important source of farmer's income although there is a visible diversification in the sources of income of the farmers.

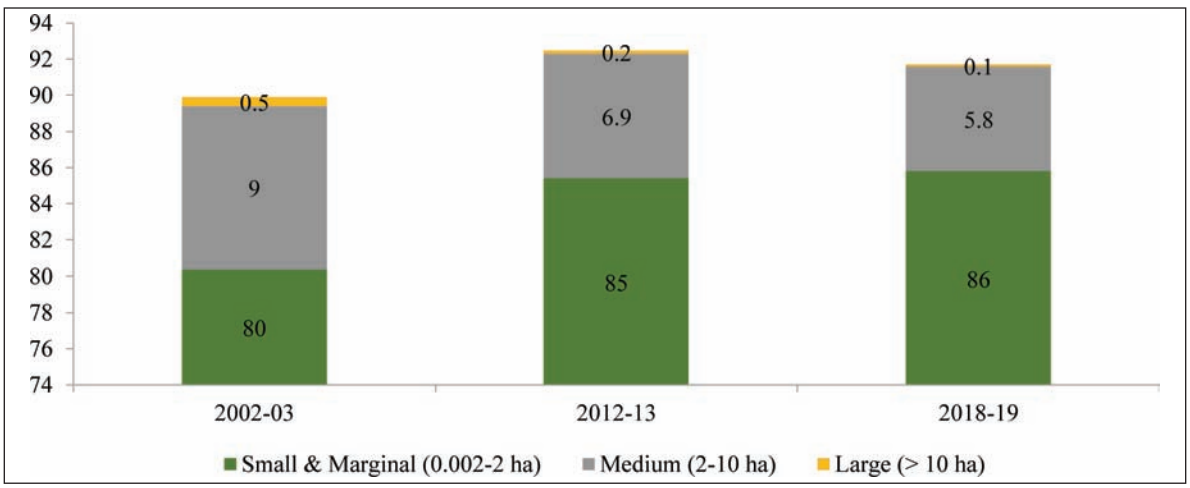
Figure 17: Sources of Average Monthly Income Class-wise (per cent)



Source: Based on data of SAS, 2021.

7.35 The SAS Report, 2021 also shows increasing fragmentation of holdings as is evident from the increasing share of small farmers in Figure 18. The average size of household ownership holdings has declined from 0.725 hectare in 2003 to 0.592 hectare in 2013 and further to 0.512 hectare in 2019. Increasing number of small farmers and increasing importance of livestock sector requires increased focus on the measures like development of small farm technology, boosting non-farm businesses and development of allied activities including animal husbandry, dairying and fisheries.

Figure 18: Distribution of Households by Size Category of Ownership Holdings (per cent)



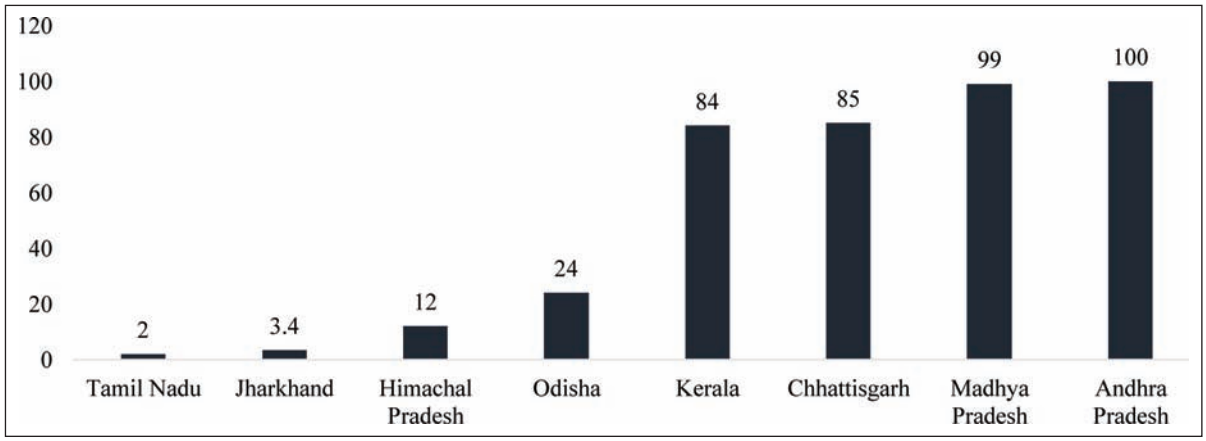
Source: Based on data of SAS, 2021.

Natural Farming

7.36 The main aim for promotion of Natural Farming is elimination of chemical fertilisers and pesticides usage and promotion of good agronomic practices. Natural Farming also aims to sustain agriculture production with eco-friendly processes in tune with nature to produce agricultural produce free of chemicals. Soil fertility & soil organic matter is restored by natural farming practices. Natural farming systems require less water and are climate friendly.

7.37 Natural farming in India is being promoted through a dedicated scheme of Bharatiya Prakritik Krishi Paddhati Programme (BPKP). The scheme promotes on-farm biomass recycling with major stress on biomass mulching, use of on-farm cow dung-urine formulations, periodic soil aeration and exclusion of all synthetic chemical inputs. Under BPKP, financial assistance of Rs 12200/ha for 3 years is provided for cluster formation, capacity building and continuous handholding by trained personnel, certification and residue analysis. State-wise area covered under the scheme is shown in Figure 19.

Figure 19: Area Covered under BPKP as on 07.12.2021 (in '000 ha).

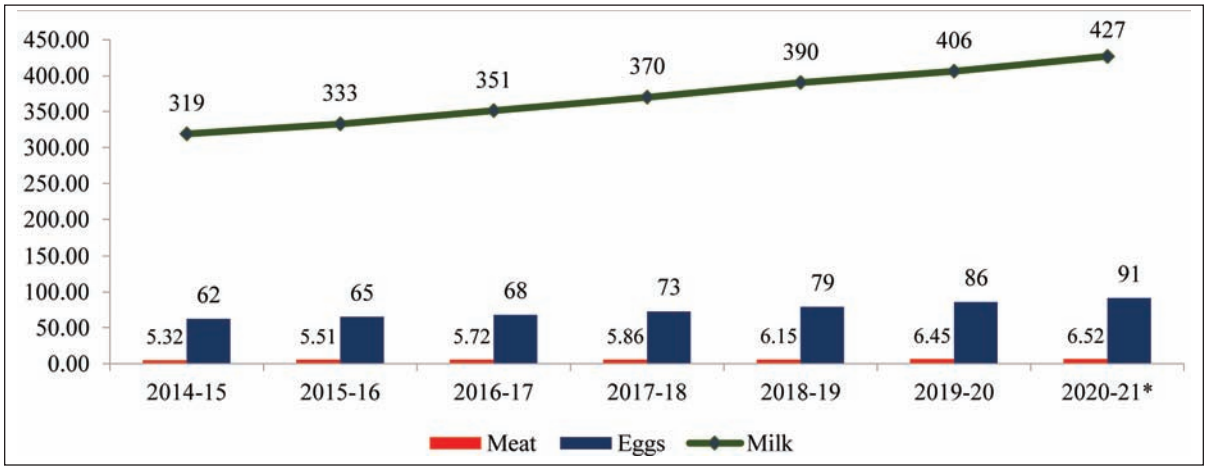


Source: Based on data of the Ministry of Agriculture and Farmers Welfare

ALLIED SECTORS: ANIMAL HUSBANDRY & DAIRYING

7.38 Livestock Sector is an important subsector of agriculture in the Indian economy. It grew at a CAGR of 8.15 per cent during 2014-15 to 2019-20 (at constant prices). As per the estimates of National Accounts Statistics (NAS) 2020 for sector wise GVA of agriculture and allied sectors, the contribution of livestock in total agriculture and allied sector GVA (at constant prices) has increased from 24.32 per cent (2014-15) to 29.35 per cent (2019-20). Livestock sector contributed 4.35 per cent of total GVA in 2019-20. Development of livestock sector has led to improvement in per capita availability of milk, eggs and meat (Figure 20).

Figure 20: Per Capita Availability of Milk (gram per day), Meat (kg per year) and Eggs (number per annum)

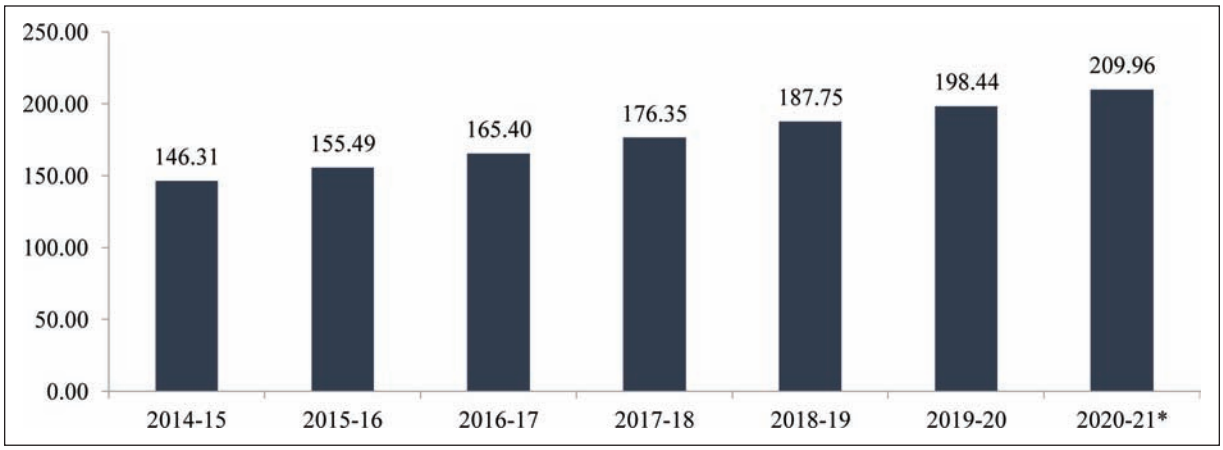


Source: Based on data received from Department of Animal Husbandry & Dairying

Dairy Sector

7.39 Dairy is the single largest agricultural commodity contributing 5 per cent of the national economy and employing more than 8 crore farmers directly. India is ranked 1st in milk production contributing 23 per cent of global milk production. Milk production in the country has grown at a compound annual growth rate of about 6.2 per cent to reach 209.96 million tonnes in 2020-21 from 146.31 million tonnes in 2014-15 (Figure 21).

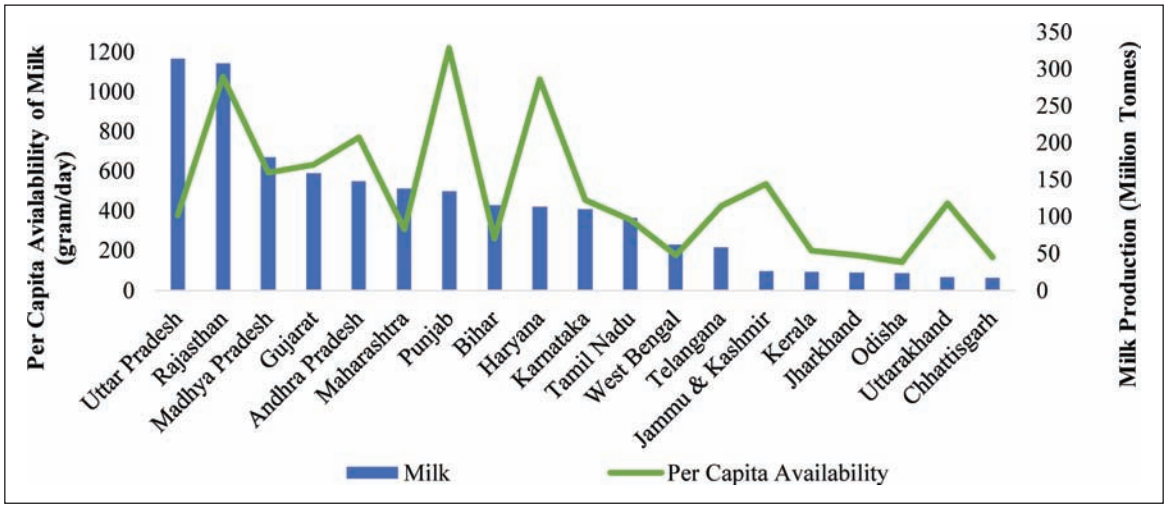
Figure 21: Trend of Milk Production in India (Million Tonnes)



Source: Based on data taken from the National Dairy Development Board and DAHD.
*Data is provisional

7.40 The all India per capita availability of milk is 427 grams per day in 2020-21 (provisional). Inter-state variability in milk production and per capita availability of milk during the year 2020-21 is shown in Figure 22.

Figure 22: Inter-State Variability in Milk Production (in million tonnes) & Per Capita Availability of Milk (gram per day) during the Year (2020-21*).



Source: DAHD.
*Data is provisional

Egg and Meat Production

7.41 According to FAOSTAT production data (2020), India ranks 3rd in Egg Production and 8th in meat production in the world. Egg production in the country has increased from 78.48 billion in 2014-15 to 122.11 billion Nos. in 2020-21 (Provisional). The per capita availability of egg is at 91 eggs per annum in 2020-21 (Provisional). Meat production in the country has increased from 6.69 million tonnes in 2014-15 to 8.80 million tonnes in 2020-21 (Provisional).

Recent Initiatives in Animal Husbandry and Dairy Sector

National Animal Disease Control Programme

7.42 National Animal Disease Control Programme (NADCP), which is the largest ever vaccination programme carried out either for human or animal vaccination in the world, is being implemented with the aim to control and eventually eradicate the Foot & Mouth Disease (FMD) and Brucellosis by 2030.

7.43 The vaccination under the NADCP was started from 31st January, 2020 onwards and got disrupted due to lockdown in the country. FMD vaccination was restarted in May 2020 and the first round of FMD vaccination has been completed in 11 States. During 2021-22, the second phase of the vaccination commenced from July, 2021 and so far 5 crore animals have been vaccinated against FMD and 27.8 lakh animals vaccinated against brucellosis till December, 2021. Further, advisories and guidelines on management of disease outbreak were sent to States/ UTs.

Animal Husbandry Infrastructure Development Fund (AHIDF)

7.44 As part of the ANB stimulus package, the Animal Husbandry Infrastructure Development Fund (AHIDF) worth Rs 15,000 crore was launched in 2020. AHIDF facilitates investments in the establishment of infrastructure for dairy and meat processing and establishment of animal feed plants by the FPOs, individual entrepreneur, MSME, Section 8 companies and private

companies. Under this scheme the Central Government provides 3 per cent interest subvention to the borrower and credit guarantee up to 25 per cent of total borrowing. As on 17.12.2021, a total of 76 projects have been approved under the scheme involving a project cost of ₹ 1802.28 crore. The amount of interest subvention released under the scheme was ₹ 12.74 crore during 2020-21 and ₹ 6.40 crore (as on 17.1.2022) during 2021-22.

FISHERIES

7.45 India is the second largest fish producing country in the world accounting for 7.56 per cent of global production. It contributes about 1.24 per cent to the country's GVA and over 7.28 per cent to the agricultural GVA. Fisheries sector has demonstrated an outstanding double-digit average annual growth of 10.87 per cent since 2014-15 with record fish production of 145 lakh tons in FY 2020-21 (provisional). In terms of employment, the sector supports the livelihood of over 28 million people in India especially the marginalized and vulnerable communities. Export earnings from the fisheries sector was ₹ 46,662.85 crore during 2019-20.

7.46 Recognizing the significance of the fisheries sector, the Government has taken several initiatives over the years to unlock its full potential. To address the credit needs of fish farmers, the Government of India in 2018-19 extended the facility of KCC also to fisheries in addition to animal husbandry farmers to help them meet their working capital needs. For fishers and fish farmers, the working capital includes the cost of fuel, ice, labour charges, mooring/landing charges, etc. The credit limit for the existing KCC holders is ₹ 3 lakhs, whereas the limit for new KCC holders for fisheries is only ₹ 2 lakhs. As on 31st December 2021, a total of 1,04,157 KCCs have been issued to fishers and fish farmers and an additional 5.04 lakh applications from fishers and fish farmers are with the banks at various stages of issuance.

7.47 Further, the Government launched a new flagship scheme of ₹ 20,050 crores called Pradhan Mantri Matsya Sampada Yojana (PMMSY) in May 2020 as a part of the ANB Package. Under PMMSY, key interventions include enhancing fish production and productivity, modernizing and strengthening the value chain, creating fisheries and post-harvest infrastructure and developing robust fisheries management and regulatory frameworks. Moreover, emphasis is laid on addressing critical gaps in the value chain through technology infusion, optimal water management to achieve 'more crop per drop', improved quality and hygiene of fish and fish products, insurance, value addition, demand-based branding and marketing and promotion of initiatives bringing economic returns for stakeholders. Additionally, the scheme prioritizes sustainability and traceability from 'catch to consumer' for augmenting fisheries exports and maintaining competitiveness in the global markets. The scheme aims to create a conducive environment for private sector participation and promotes the dynamic development of innovative entrepreneurial ventures and viable business models in the fisheries sector. By December, 2021, under PMMSY, proposals with an outlay of ₹ 11295.12 crores have been received from various States/UTs against which the project proposals with total outlay of ₹ 5584.74 crores have already been approved with ₹ 1975.63 crore as the share of the Centre.

AGRICULTURAL RESEARCH AND EDUCATION

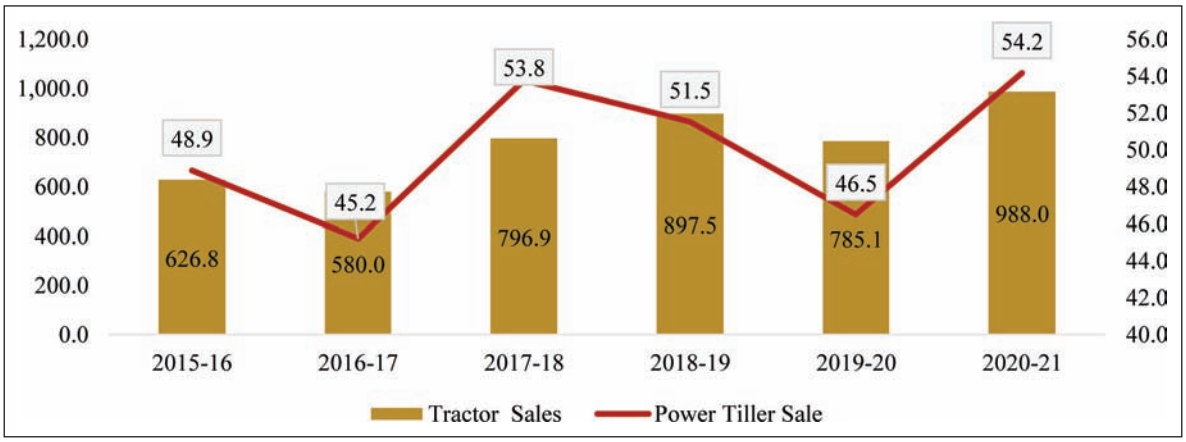
7.48 Agricultural research and education has a key role in the development of an environmentally sustainable global food system, ensuring food and nutritional security and increasing farm income by cost minimization and yield maximization. Recognising these objectives, the National Agricultural Research System of India has produced significant results in terms of mechanisation of agriculture and development of climate resilient technologies and high yielding varieties (HYVs) of seeds, etc. For example, the Indian Council of Agricultural Research (ICAR) during 2020 and 2021 notified/released a total of 731 new varieties/ hybrids of field crops and 98 of horticultural crops. To ensure nutritional security through the natural food system and facing the climate change, the Department of Agricultural Research & Education (DARE) has developed 35 special trait varieties including biofortified and stress tolerant varieties of field and horticulture crops during 2021-22, taking the tally of biofortified varieties to 87. ICAR has also designed and developed an Agri-voltaic system of 105 kW for crop production and electricity generation from a single land use system with an average photovoltaic (PV) generation of 1,29,266 kWh annual power output and a total revenue of about ₹ 6 lakh. Agri-voltaic system also reduces Green House Gas (GHG) emission (598 tons of CO2 savings/year/ha).

Mechanization

7.49 Farm mechanization reduces the cost of cultivation and increases productivity through efficient use of other inputs and natural resources. The penetration of powered machines in various farm activities is assessed in the range of 40 to 45 per cent (NABARD, 2018). Mechanization in farm operations for major crops in India in 2019-20 has been 70, 38, 31 and 32 percent in seed bed preparation, sowing/planting/transplanting, weeding- interculture & plant protection and harvesting & threshing, respectively. To promote an inclusive growth of farm mechanization in the country, a Sub Mission on Agricultural Mechanization (SMAM) was launched in the year 2014-15. Under the scheme, assistance is given to State Governments for providing training and demonstration of agricultural machinery and assist farmers in procurement of various agricultural machinery and equipments as also for setting up of Custom Hiring Centre (CHC). During 2014-15 to 2020-21, a total of 27828 CHC and during 2020-21 alone, 9432 CHC were established under the SMAM scheme. The Government has also developed and launched Multi lingual Mobile App called Farm Machinery Solutions (FARMS) which helps the farmers in getting rented farm machinery and implements through CHC in their area.

7.50 Sale of tractors and power tillers may be used as an indicator of farm mechanisation (Figure 23). Indian tractor industry is the largest in the world accounting for one-third of the total global production. The farm equipment market in India is estimated at USD 8.8 billion in 2017 and it is expected to reach USD 12.5 billion by 2022. The tractor market is expected to grow at a CAGR of 7 per cent by 2022.

Figure 23: Sale of Tractors and Power Tillers in India (in thousand number)



Source: Based on data received from DAFW.

Crop Residue Management

7.51 Air pollution due to stubble burning in the states of Haryana, Punjab, Uttar Pradesh and the NCT of Delhi has been a major concern. Hence, to support the efforts of the Governments to address air pollution and to subsidize machinery for the farmers for in-situ management of crop residue, a new Central Sector Scheme on 'Promotion of Agricultural Mechanization for In-Situ Management of Crop Residue in the States of Punjab, Haryana, Uttar Pradesh and NCT of Delhi' (CRM) for the period from 2018-19 to 2020-21 had been launched with a total outlay of ₹ 1791.80 crore. Under this scheme, during 2020-21, 51988 numbers of various agricultural machinery were distributed and 15106 numbers of Custom Hiring Centres were established.

Role of R&D in Agriculture

7.52 Research and development and its application in agriculture & allied sectors can play a major role in realisation of sustainable agriculture practice that efficiently meets the objectives of nutritional security and improvement in farm income. World's food system contributes to about one-fifth of global greenhouse gas (GHG) emissions. According to a report of the International Food Policy Research Institute, agriculture is key to meeting half of the 17 Sustainable Development Goal (SDG) targets which, inter alia, include the targets of eliminating poverty and hunger and reducing inequalities. Climate-resilient varieties with resistant to multiple pests and diseases and abiotic stress is a significant area of work in the context of climate change and food security.

7.53 Research[5] shows that every rupee spent on agricultural research and development, yields much better returns (11.2), compared to returns on every rupee spent on fertiliser subsidy (0.88), power subsidy (0.79), education (0.97) or on roads (1.10). Increasing R&D spending on agriculture is, therefore, not only a vital necessity for ensuring food security, but also important from the socio-economic point of view.

FOOD PROCESSING SECTOR

7.54 During the last five years ending 2019-20, Food Processing Industries (FPI) sector has been

[5] Gulati, A., Zhou, Y. and Ferroni M. (2018), "Supporting Indian Farms: The Smart Way", Academic Foundation in association with ICRIER.

growing at an average annual growth rate of around 11.18 per cent. The sector constituted as much as 9.87 per cent of GVA in manufacturing in 2019-20 at 2011-12 prices. Food Processing Industry is one of the major employment intensive segments having a share of 12.38 per cent (at 3-digit of NIC classification) in the employment generated in all Registered Factory sector in 2017-18. According to the latest Annual Survey of Industries (ASI) for 2017-18, the total number of persons engaged in registered food processing sector was 19.33 lakh. Unregistered food processing sector supports employment to 51.11 lakh worker as per the NSSO 73rd Round, 2015-16 and thus 14.18 per cent of employment in the unregistered manufacturing sector. The share of FPI in manufacturing and the growth in the GVA of FPI (GVA-FPI) may be seen in Figure 24.

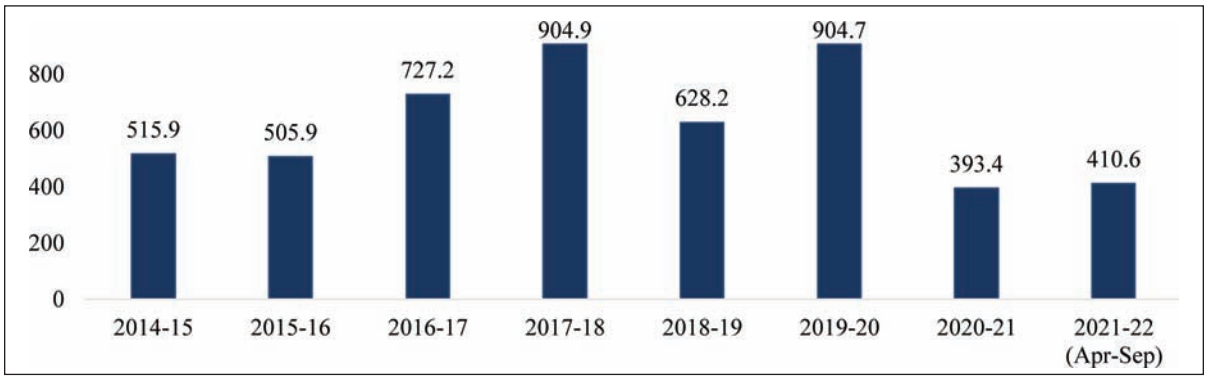
Figure 24: Share of FPI in Manufacturing GVA (in per cent)

Source: Based on data received from Ministry of Food Processing Industries (MoFPI).

FDI in Food Processing Sector

7.55 In FPI, 100 per cent FDI is permitted under the automatic route. However, in case of trading in respect of food products manufactured and/or produced in India including through e-commerce, 100 per cent FDI is allowed under the Government approval route. The sector has witnessed FDI equity inflow of US$ 4.99 billion during the period April 2014 to September 2021. The FDI equity inflow in FPI sector during April to September 2021 was US$ 410.62 million in comparison to US$ 220.42 million in the corresponding period last year. Year-wise FDI inflows in FPI may be seen in Figure 25.

Figure 25: FDI Inflows in Food Processing Sector (in US $ million)



Source: Based on data received from Ministry of Food Processing Industries (MoFPI).

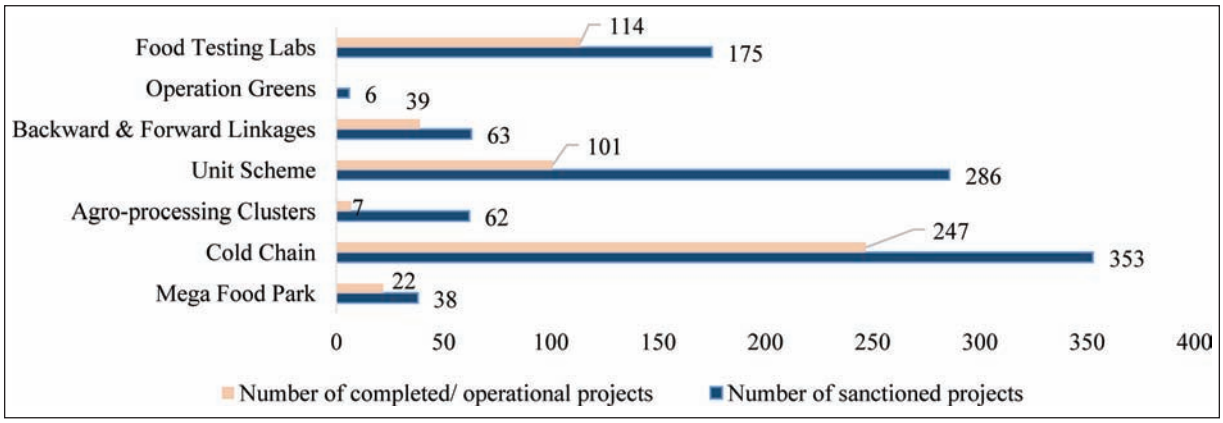
Prime Minister-Formalization of Micro Food Processing Enterprises (PM-FME)

7.56 Under the ANB Mission, Ministry of Food Processing Industries (MoFPI) has launched a new Centrally Sponsored Scheme, PM-FME with a total outlay of ₹ 10,000 crore over the period 2020-2025. Under the scheme, One District One Product (ODOP) status for 137 unique products in 710 districts of 35 States/ UTs has been approved by the Ministry. 75 proposals for incubation with an outlay of ₹ 200.30 crore have been sanctioned/approved out of which 52 proposals were approved in 2020-21 and 23 in 2021-22.

Pradhan Mantri Kisan SAMPADA Yojana (PMKSY)

7.57 Under the umbrella central sector scheme PMKSY, the Ministry is implementing various component schemes, inter-alia, including (i) Mega Food Parks, (ii) Integrated Cold Chain and Value Addition Infrastructure, (iii) Infrastructure for Agro-processing Clusters, (iv) Creation of Backward and Forward Linkages (v) Creation / Expansion of Food Processing & Preservation Capacities, (vi) Operation Greens and (vii) Food Testing Laboratories. The status of projects sanctioned and completed /operational as on 28.12.2021 may be seen in Figure 26.

Figure 26: Status of projects sanctioned and completed/operational under PMKSY



Source: Based on data received from MoFPI.

TOP Scheme

7.58 Operation Greens Scheme was announced in the Union Budget for 2018-19 to promote Farmer Producer Organisations (FPOs), agri-logistics, processing facilities and professional management for Tomato, Onion and Potato (TOP) crops. The Scheme was launched with two components:

(i) Long term: Value Chain Development Projects - Under this, support is provided to capital investment projects for TOP crops. In pursuance of Budget announcement 2021-22, the scope of this scheme has been expanded from TOP to Twenty-Two Perishable products.

(ii) Short term: Price Stabilization Measures - Under this, subsidy is provided at the rate of 50 per cent on transportation and storage at the time of harvest for evacuation of surplus production of TOP crops from the producing area to the consumption centres. Transportation subsidy under the scheme was also extended to Kisan Rail Scheme w.e.f. 12.10.2020. The scope of short-term measures under the scheme was extended from TOP to TOTAL (41 notified fruits and vegetables) w.e.f. 11.06.2020 as a part of ANB announcement. Transport subsidy of ₹ 115.01

crore has been released till 15.12.2021 by Indian Railways against the transportation of approx. 5.68 Lakh MT of Fruits & Vegetables.

FOOD MANAGEMENT

7.59 The major objectives of food management are procurement of foodgrains from farmers at remunerative prices, distribution of foodgrains to consumers, particularly the vulnerable sections of society at affordable prices and maintenance of food buffer stock for food security and price stability. The instruments used are procurement at MSP from farmers and sale at Central Issue Price (CIP) under the Targeted Public Distribution System (TPDS). The nodal agency which undertakes procurement, distribution and storage of foodgrains is the Food Corporation of India (FCI). The distribution of foodgrains is undertaken primarily under the National Food Security Act, 2013 (NFSA) and other welfare schemes of the Government of India.

Procurement of Foodgrains

7.60 During Kharif Marketing Season (KMS) 2020-21, 601.85 lakh metric tons (LMT) of rice has been procured against an estimated target of 642.58 LMT. In the KMS 2021-22, a total of 566.58 LMT of paddy (equivalent to 379.98 LMT rice) was procured as on 16.01.2022. During RMS 2021-22, 433.44 LMT of wheat was procured against 389.92 LMT procured during RMS 2020-21. Also, during the Kharif & Rabi Marketing Season 2020-21, approx. 11.87 LMT of coarse grains has been procured which is highest in the last five years.

Allocation of Foodgrains

7.61 To ameliorate the hardships faced by the poor due to economic disruption caused by COVID-19 Pandemic, the Government launched Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY) initially for the period from April to June 2020. However, keeping in view the need for continuous support to the poor and the needy, the scheme has been extended and implemented in various phases. Currently Phase V of PMGKAY is in operation covering December, 2021 to March 2022. Under the scheme, 5 kg of additional foodgrains per person per month has been/ is being provided free of cost to NFSA beneficiaries in all the phases. During the year 2020-21, about 322 LMT of food-grains and during the year 2021-22, about 437.37 LMT of foodgrains have been allocated free of cost under PMGKAY scheme to around 80 crore NFSA beneficiaries.

7.62 During the year 2021-22, the Government had allocated 1052.77 lakh tons of food grains to States/UTs under NFSA and other welfare schemes as compared to 948.48 lakh tons in 2020-21.

Fortification of Rice and its Distribution

7.63 The Government of India approved the Centrally Sponsored Pilot Scheme 'Fortification of Rice and its Distribution under Public Distribution System' on 14.02.2019 for a period of 3 years beginning 2019-20. The Pilot Scheme is being implemented in 15 Districts (1 District per State). Eleven States including Andhra Pradesh, Gujarat, Maharashtra, Tamil Nadu, Chhattisgarh, Uttar Pradesh, Odisha, Telangana, Madhya Pradesh Uttarakhand and Jharkhand have started distributing the fortified rice in their identified districts under the pilot scheme. Nearly 3.38 LMT of fortified rice has been distributed till December, 2021 under the Pilot Scheme.

7.64 The Government has started distributing fortified rice under Integrated Child Development Scheme and PM Poshan schemes across the country during 2021-22 in an effort to scale up the distribution of fortified rice in the country to fight malnutrition and micronutrient deficiencies among pregnant women, lactating mothers, children etc. Nearly 19.79 LMT (as on 04.01.2022) of fortified rice has been procured by FCI and Decentralized Procuring States for distribution under ICDS and PM Poshan across the country.

One Nation One Ration Card

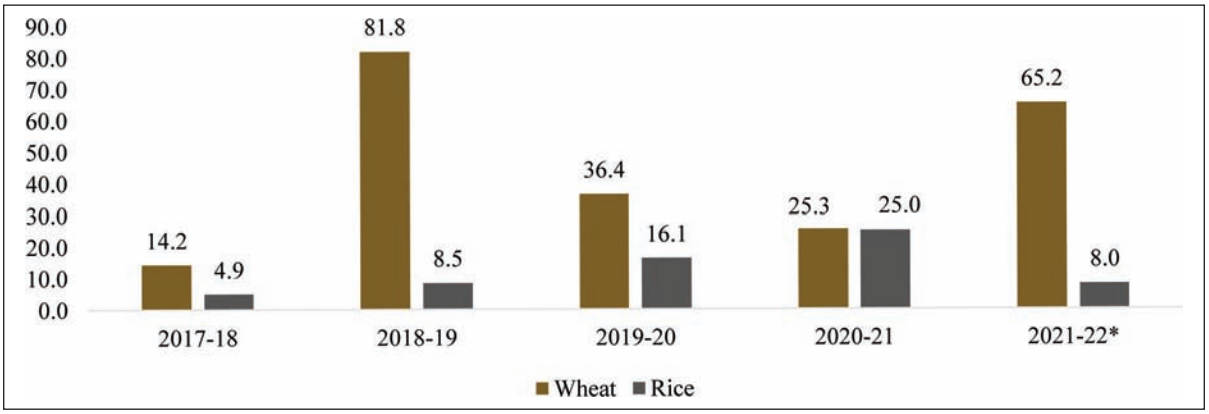
7.65 Under the scheme “Integrated Management of Public Distribution System" which was started during 2018-19 and 2019-20, One Nation One Ration Card (ONORC) System has been launched. The validity of the scheme has been extended to 31.03.2023 from the existing 31.03.2022. Through this system migratory beneficiaries shall be able to access their food security entitlements from any fair price shop (FPS) of their choice by using their same ration card after biometric/Aadhaar authentication on electronic Point of Sale (ePoS) devices at the FPS. Presently, the facility of national/inter-State portability is enabled in 34 States/UT covering nearly 75 crore beneficiaries (94.3 per cent of total NFSA population). Constant efforts are being made to expand the reach of national portability to the beneficiaries of remaining two States also.

Open Market Sale Scheme

7.66 In addition to maintaining buffer stocks and for making a provision for meeting the requirement of the Targeted Public Distribution System (TPDS) and other welfare schemes, FCI on the instructions from the Government sells excess stocks out of Central Pool through Open Market Sale Scheme (Domestic) [OMSS (D)] in the open market from time to time at predetermined prices called reserve prices. A target of 75 LMT of wheat has been set for sale by FCI including retail sale out of Central Pool in the open market under OMSS (D) during 2021-22. Also, a target of 50 LMT of rice has been set for sale by FCI out of Central Pool in the open market under OMSS (D) during 2021-22.

7.67 Under the OMSS (D) 2020-21 policy, a special dispensation for supply of foodgrains to all the charitable or non-governmental organizations etc. engaged in relief or running community kitchens for migrant labourers/vulnerable groups due to the present lock down condition was introduced since 08.04.2020. Under this scheme, wheat at the uniform rate of ₹ 21 per kilogram and rice at the uniform rate of ₹ 22 per kilogram are issued to charitable institutions/NGO. There is no upper limit of allocation of foodgrains to each of such organizations from any FCI depot. This special dispensation was initially till June, 2020 which was extended for rest of the year 2020-21 at the same rate, terms and conditions. In view of resurgence of COVID pandemic, the said special dispensation was further extended till 31st March 2022 or till further order, whichever is later, at the same rate, terms and conditions. Under this scheme, 1126 organizations had lifted 10422 MT of rice and 230 organizations had lifted 1,246 MT of wheat till 25.03.2021. Further, in the year 2021-22, 34 organizations have lifted 847 MT of rice and 6 organizations have lifted 10 MT of wheat till 13.01.2022. The quantities of wheat and rice sold under the OMSS (D) during the last five years and FY 2021-22 is given in Figure 27.

Figure 27: Sale of Wheat and Rice Sold under OMSS (D) during the Last Five Years (Quantity in LMT)

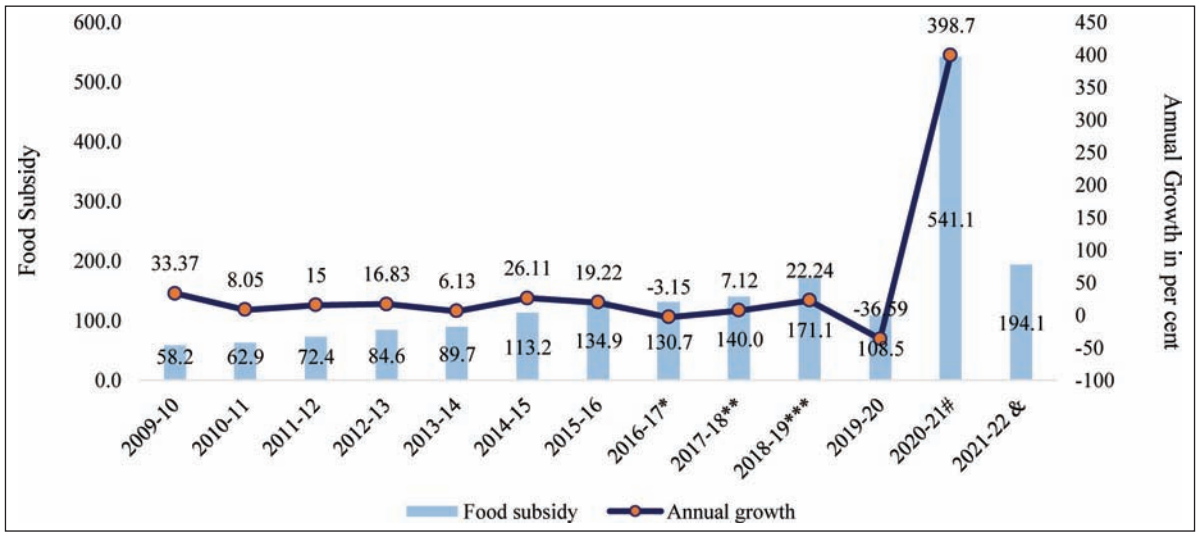


Source: Based on data received from DFPD.
* upto 3rd weekly e-auction of January, 2022

Food Subsidy

7.68 The difference between the per quintal economic cost and the per quintal Central Issue Price (CIP) gives the quantum of per quintal food subsidy. The economic cost of wheat has increased from Rs 1908.32 per quintal in 2013-14 to ₹ 2993.80 per quintal in 2021-22. Similarly, the economic cost of rice has increased from Rs 2615.51 per quintal in 2013-14 to ₹ 4293.79 per quintal in 2021-22. However, as a pro-poor measure, the CIPs for NFSA beneficiaries have not been revised since the commencement of the NFSA. Measures are being taken by the Government to improve the efficiency of food management to reduce the gap between economic cost and CIP. A trend in food subsidy bill may be seen in Figure 28.

Figure 28: Food Subsidy (in ₹ thousand crore) and Annual Growth in Food Subsidy (in per cent)



Source: Based on data received from DFPD.

*Includes NSSF loan of ₹ 25000 crore to FCI. ** Includes National Small Savings Fund (NSSF) loan of ₹ 40000 crore to FCI. ***Includes NSSF loan of ₹ 70000 crore to FCI. # ₹ 11436 crore has been reimbursed to DCP State from unutilized NSSF Loan sanctioned to FCI as per instruction of MoF in the FY 2019-20. Out of ₹ 11436 crore, ₹ 10000 crore has been repaid to FCI. & As on 18.01.2022.

Ethanol Blended with Petrol (EBP) Programme

7.69 The Government has now set 20 per cent ethanol blending target for mixing ethanol with petrol to be achieved by 2025. It is estimated that the blending target at 10 per cent would be achieved during 2022. With a view to achieve these targets, Government has allowed production of ethanol from different feed stocks viz B-Hy & C-Hy molasses, cane juice, sugar syrup, sugar and damaged food grains including surplus FCI rice, maize, etc. by the distilleries either attached with sugar mills or standalone. Financial assistance in the form of interest subvention are also provided to eligible distilleries for augmentation of ethanol production capacity in the country. The ethanol supply under the EBP program, which was only 38 crore liters in Ethanol Supply Year (ESY) 2013-14, has increased to 173.3 crore liters during ESY 2019-20 and is expected to be more than 302 crore liters by the end of ESY 2020-21 to achieve approx. 8.1 per cent blending. Ethanol blending target for ESY 2021-22 is 10 per cent which is to progressively increase to 20 per cent by year 2025.

Storage

7.70 The storage capacity available with FCI, a part of warehousing capacity available with Central Warehousing Corporation (CWC) and State Warehousing Corporations (SWCs) and capacity hired from private sector is used for storage of foodgrains procured for central pool by the Government Agencies. The total storage capacity available with FCI and State Agencies for storage of foodgrains as on 31.12.2021 was 961.73 LMT, comprising covered godowns of 792.81 LMT and Covered and Plinth (CAP) facilities of 168.92 LMT. Out of the total available storage capacity of 961.73 LMT, the capacity of 463.24 LMT was with FCI and 498.49 LMT with State Agencies. Moreover, as on 31.12.2021, a capacity of 144.34 LMT has been created under the Private Entrepreneurs Guarantee Scheme in which construction of godowns are undertaken in PPP mode.

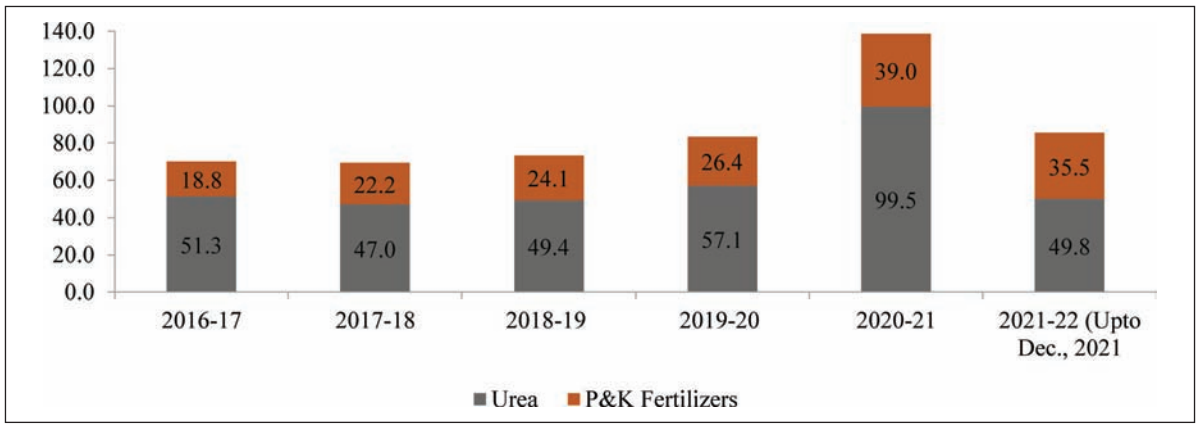
7.71 Government is implementing a Central Sector Scheme for construction of godowns with focus on augmenting storage capacity in the States of North Eastern (NE) Region and a few other States. Under this Scheme, funds are released directly to FCI in the form of equity for land acquisition and construction of storage godowns and infrastructure like railway sidings, electrification, installation of weighbridge, etc. Funds are also released as grants-in-aid to the Governments of the North-Eastern States including Jammu & Kashmir for construction of intermediate storage godowns considering the storage gaps as well as difficult geographical & climatic conditions in these States. During 12th Five Year Plan (2012-17), a total capacity of 1,84,175 MT had been created in NE States and other than NE States. This scheme has further been extended for five years upto 31.03.2022. A total capacity of 82,760 MT (65,870 MT by FCI and 16,890 MT by State Governments) has been created from 01.04.2017 to 31.12.2021.

7.72 Government of India has also approved an action plan/road map for construction of steel silos in the country in Public Private Partnership (PPP) mode for modernizing storage infrastructure and improving shelf life of stored foodgrains. Under the plan for silo development, upto 31.12.2021, 29.25 LMT capacity in various locations throughout the country have been awarded. Out of which, a capacity of 11.125 LMT is completed and remaining are under various stages of development.

FERTILIZERS

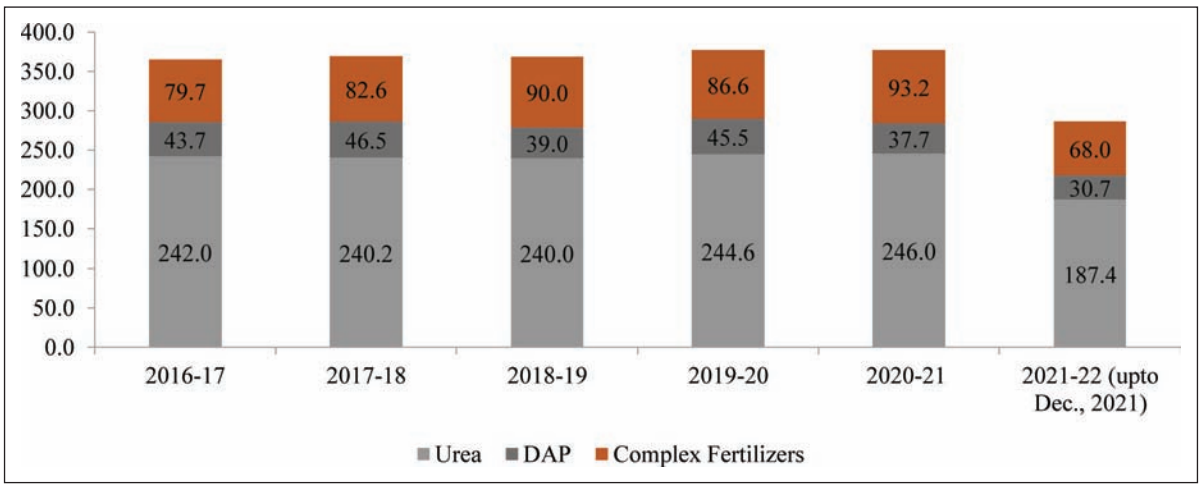
7.73 Government is making available fertilizers, namely Urea and 24 grades of P&K fertilizers to farmers at subsidized prices through fertilizer manufacturers/importers. Urea is being provided to the farmers at a statutorily notified Maximum Retail Price (MRP). As far as Phosphatic and Potassic (P&K) fertilizers are concerned, Government is implementing Nutrient Based Subsidy (NBS) Scheme w.e.f 01.04.2010. Under the said scheme, subsidy is provided on each grade of subsidized Phosphatic and Potassic (P&K) fertilizers depending upon its nutrient content. Figure 29 shows fertilizer subsidy provided by the Government over years in order to keep the fertilizers available at affordable prices. Figures 30 and 31 show production and import of various categories of fertilizers.

Figure 29: Fertilizer Subsidy (in ₹ thousand crore)



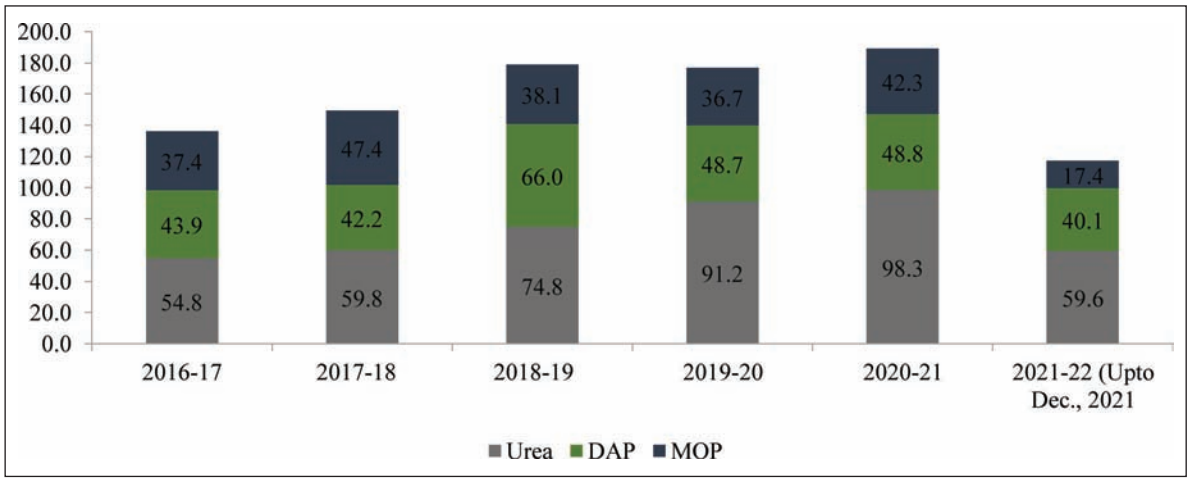
Source: Based on data received from the Department of Fertilizers.

Figure 30: Production of Fertilizers (LMT)



Source: Based on data received from the Department of Fertilizers.

Figure 31: Imports of fertilizers (LMT)



Source: Based on data received from the Department of Fertilizers.

7.74 In order to tackle the import dependency and make the subsidy regime more efficient and transparent, the Government has taken several steps. For example, New Urea Policy-2015 has been notified with the objectives of maximizing indigenous production, promoting energy efficiency in production, and rationalizing subsidy burden on the government. Government has made it mandatory for all the domestic producers of urea to produce only neem coated urea. Government has brought Potash Derived from Molasses (PDM) under Nutrient Based Subsidy (NBS) scheme for the first time since its inception in 2010 to give a push to its manufacturing by Sugar Mills as a by-product and reduce its import dependence. Latest technologies such as coal gasification; implementation of Direct Benefit Transfer for providing benefits to farmers through Point of Sale machines, etc. are being promoted.

CONCLUSION

7.75 The performance of the agriculture and the allied sector has been resilient to the COVID 19 shock. The sector grew at 3.6 per cent in 2020-21 and improved to 3.9 per cent in 2021-22. However, as shown by the latest SAS report, the fragmentation of landholdings has led to alternate sources such as livestock, fishery and wage labour becoming significantly important for an agricultural household. Increasing importance of allied sectors including animal husbandry, dairying and fisheries in growth and income of the farmers indicates that focus needs to shift more towards harnessing the potential of allied activities. There is also a need to improve productivity of small and marginal farmers through development and implementation of small holding farm technologies.

7.76 Crop diversification towards oilseeds, pulses and horticulture needs to be given priority by addressing the core issues of irrigation, investment, credit and markets in their cultivation. While the Government has adopted the use of MSP as signal to encourage crop diversification, there is also a need for coordinated action from the State Governments to facilitate the shift to high value and less water consuming crops to enable realization of the objective of doubling farmers' income in a sustainable way.

7.77 Research and development in agriculture & allied sectors can play a major role in realisation of sustainable agriculture practice that efficiently meets the objectives of nutritional security and improvement in farm income. Research shows that every rupee spent on agricultural research and development, yields better returns compared to returns on money spent on subsidies or other expenditures on inputs. The increase in agriculture R & D therefore may improve productivity in the crop and allied sectors.

7.78 There is a need to explore options and promote use of alternative fertilizers such as Nano Urea and organic fertiliser which protect the soil, are more productive and contribute to higher nutrient use efficiency. Focus should be on use of new technology including drones and AI-based decision support systems, reduction in use of chemical fertilizers and use of low-cost organic inputs and supporting start-ups for innovations.

Industry and Infrastructure

08
CHAPTER

Global Industrial activity continued to be affected by the disruptions caused by the COVID-19 pandemic. While the Indian industry was no exception to these disruptions ,its performance has improved in 2021-22. Gradual unlocking of the economy, record vaccinations, improvement in consumer demand, continued policy support towards industries by the government in the form of AtmaNirbhar Bharat Abhiyan and further reinforcements in 2021-22 have led to an upturn in the performance of the industrial sector. The growth of the industrial sector, in the first half of 2021-22, was 22.9 percent vis a vis the corresponding period of 2020-21and is expected to grow by 11.8 percent in this financial year. The industrial performance has shown improvement as reflected in the cumulative growth of the IIP. During April-November 2021-22 the IIP grew at 17.4 percent as compared to (-)15.3 percent in April-November 2020-21. According to RBI- Studies on Corporate Performance, which is based on the results of select listed companies in the private corporate sector, the net profit to sales ratio of large corporates reached an all-time high despite the pandemic. Buoyant FDI inflows amid improvements in overall business sentiments, foretells a positive outlook for the industry.

The introduction of the production linked incentive scheme (PLI) to encourage scaling up of industries and major boost provided to infrastructure-both physical as well as digital– combined with continued measures to reduce transaction costs and improve ease of doing business, would support the pace of recovery. Several initiatives such as the National Infrastructure Pipeline (NIP), National Monetization Plan (NMP), amongst others, have been taken to propel the infrastructure investment. Capital expenditure for the Indian Railways has been substantially increased from an average annual of Rs. 45,980 crores during 2009-14 to Rs. 155,181 crores in 2020-21 and it has been budgeted to further increase to Rs. 215,058 crores in 2021-22. This implies five times increase in comparison to the 2014 level. In addition, the extent of road construction per day increased substantially in 2020-21 to 36.5 kms per day from 28 kms per day in 2019-20, a rise by 30.4 percent as compared to the previous year. The Government has also heralded a major boost to the electronics hardware sector and brought in structural and procedural reforms in the telecom sector.

INTRODUCTION

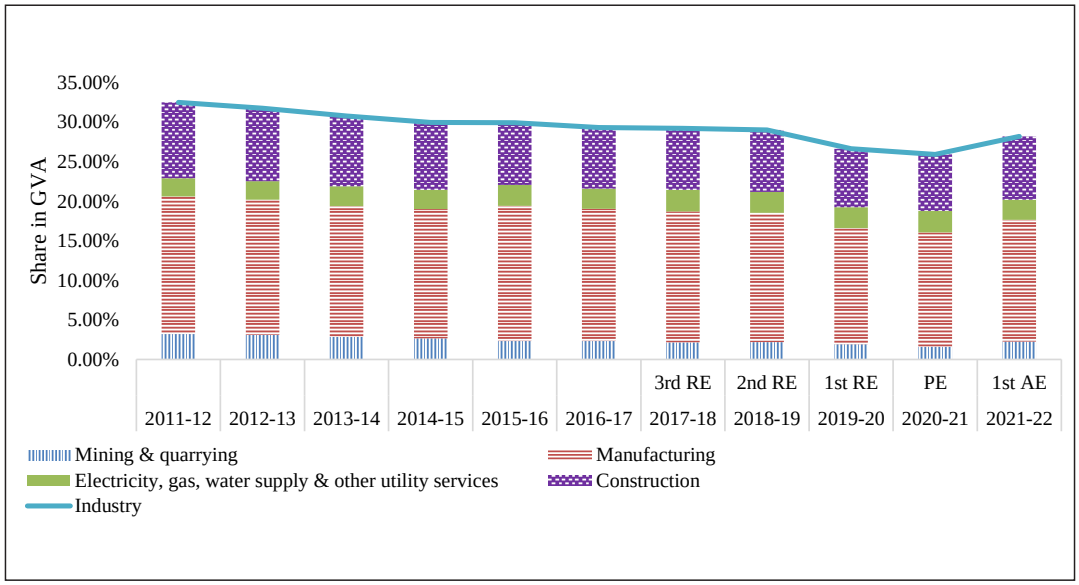
8.1 COVID-19 pandemic led to disruptions in global economic activity impacting not only the lives but also livelihoods. The Indian industry experienced interlude in business activity leading to slowdown in its performance. With the gradual unlocking of the country coupled

with supportive policy initiatives which included easing of supply side bottlenecks through easier access to credit especially, emergency credit line guarantee scheme to MSMEs, relief to the real estate sector, production-linked incentives for 14 champion sectors and other direct tax measures, the industrial growth started to recover. In the past few months, record vaccinations as well as improvement in consumer demand and business confidence have had a positive impact on the performance of the industrial sector. This period also saw a boost to digital infrastructure, structural reforms in telecommunications and big-ticket disinvestment in Air India. The pace of this recovery and further growth is likely to continue due to consistent efforts of the government to bring in various structural, fiscal and infrastructural reforms in addition to a slew of measures/ schemes like the production linked incentive scheme (PLI) to support industries .

8.2 The gross value addition at constant prices (GVA) in the industrial sector grew at the compound annual growth rate (CAGR) of 4.53 percent between 2011-12 and 2019-20 while total GVA grew by CAGR of 5.63 percent over the same period.The share of the industrial sector in the nominal GVA(at current prices) was 25.9 percent in 2020-21.With the industrial sector recovering and expected to grow at 11.8 percent, as per advance estimates for 2021-22 by National Statistical Office, industry's share is expected to increase to 28.2 percent. (Figure 1).

8.3 Manufacturing, with an average share of 16.3 percent in nominal GVA over the last decade, has a dominant presence within the industrial sector. In 2020-21, the share of manufacturing fell to 14.4 percent but is expected to improve to15.3 percent in 2021-22. The share of electricity has been showing an increasing trend since 2012-13 and was 2.7 percent 2020-21. Figures 1 and 2 show value added in the industrial sector and growth respectively. In 2020-21, electricity, gas, water supply and other utility services was the only sub sector that had experienced a positive growth of 1.9 percent (table 1). In 2021-22, the manufacturing sector is expected to grow by 12.5 percent, mining and quarrying by 14.3 percent, construction by 10.7 percent and electricity, gas and water supply by 8.5 per cent. This improvement is on the back of industrial contraction in the corresponding period of the last financial year.

Figure 1: Share of Industry and its components in Gross value added



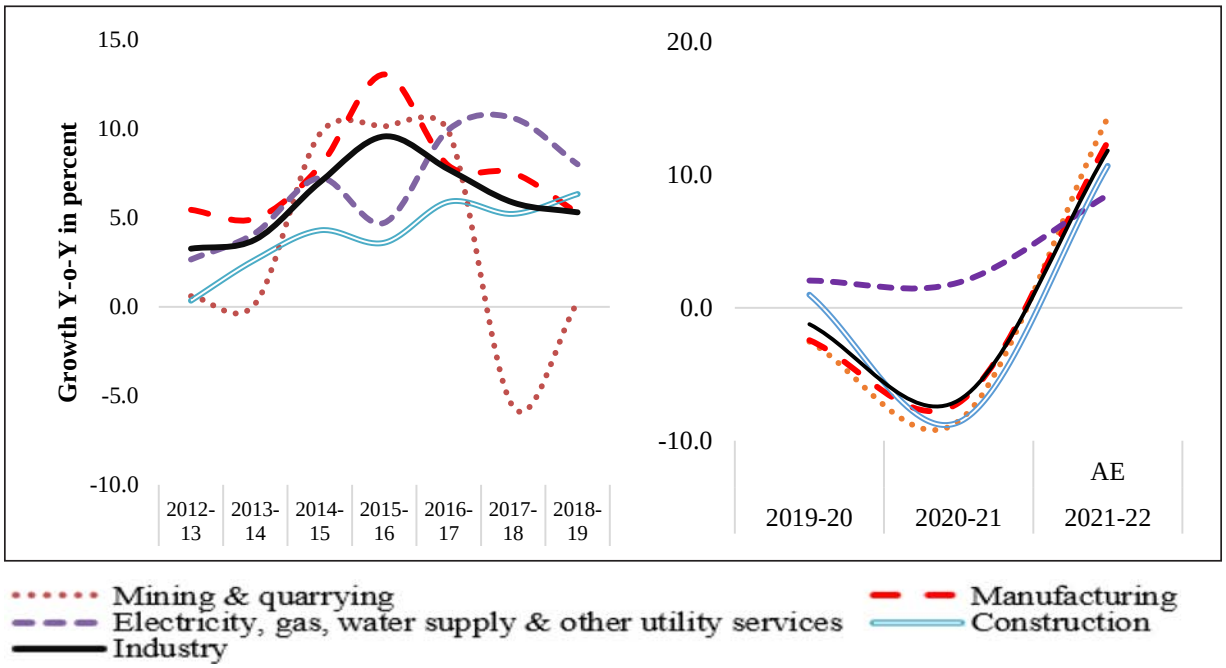
Source: Survey calculations based on MoSPI data. Data at current prices.

Table 1: Growth in Gross Value Added in Industry

Sectors	Year									
	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
						3rdRE	2ndRE	1stRE	PE	1stAE
Mining & quarrying	0.6	0.2	9.7	10.1	9.8	-5.6	0.3	-2.5	-8.5	14.3
Manufacturing	5.5	5.0	7.9	13.1	7.9	7.5	5.3	-2.4	-7.2	12.5
Electricity, gas, water supply & other utility services	2.7	4.2	7.2	4.7	10.0	10.6	8.0	2.1	1.9	8.5
Construction	0.3	2.7	4.3	3.6	5.9	5.2	6.3	1.0	-8.6	10.7
Industry	3.3	3.8	7.0	9.6	7.7	5.9	5.3	-1.2	-7.0	11.8

Source: Survey calculations based on MoSPI data.

Figure 2: Growth trends in Industry's Value Addition and its components



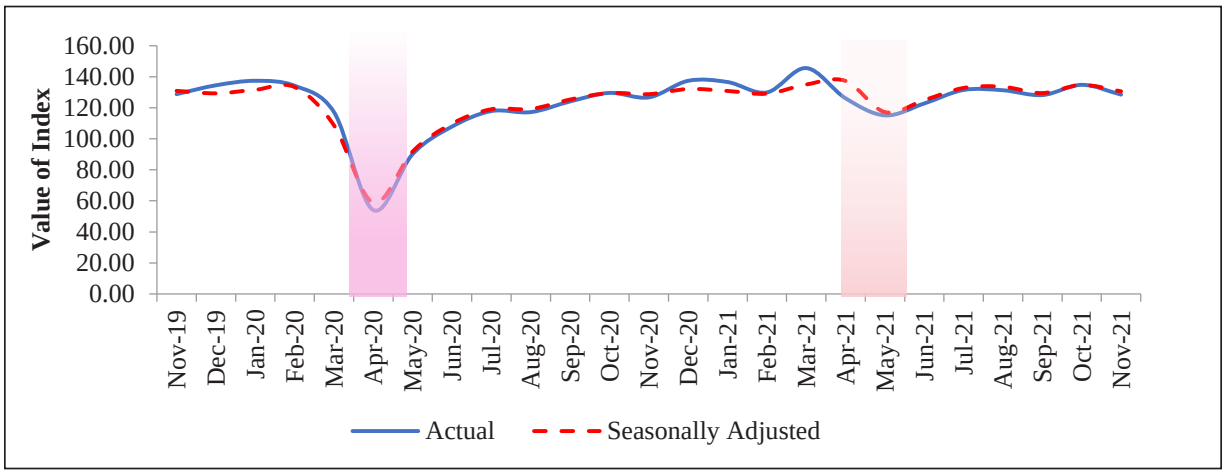
Source: Survey calculations based on MoSPI data.

Index of Industrial Production (IIP)

8.4 The impact of the pandemic on the industrial sector is reflected in the negative growth of 8.4 percent in 2020-21. In April-November 2021-22 the IIP grew by 17.4 per cent as compared to (-15.3) per cent in the corresponding period of the previous year. The supply side measures as also steps to bolster demand, taken to address the contraction, are responsible for the significantly improved performance of the industrial sector in 2021-22. In November 2021 the IIP index grew by 1.4 per cent with the mining sector recorded a growth of 5.0 percent followed by electricity at 2.1 percent and manufacturing at 0.9 percent. In terms of use-based classification also, the

index reflects broad-based recovery across all sectors (Table 2). Primary goods at 3.5 percent, infrastructure goods with 3.8 percent, consumer non-durables with 0.8 and intermediate goods at 2.5 percent led the recovery under the used based classification.

Figure 3: Value of Index of Industrial Production



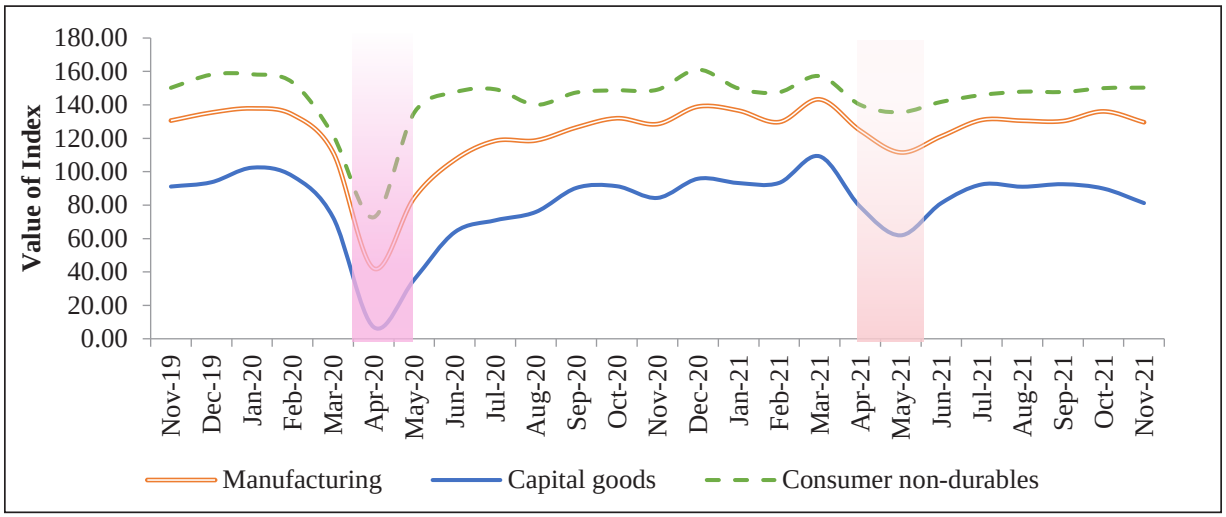
Source: Survey calculations based on MOSPI data

Table 2: Sector wise IIP - Growth in percent

	Weight	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21
By Sector														
Mining	14.4	-5.4	-3	-2.4	-4.4	6.1	#	23.6	23.1	19.5	23.3	8.6	11.5	5
Manufacturing	77.6	-1.6	2.7	-0.9	-3.4	28.4	#	32.1	13.2	10.5	11.1	3	3.1	0.9
Electricity	8	3.5	5.1	5.5	0.1	22.5	#	7.5	8.3	11.1	16	0.9	3.1	2.1
General	100	-1.6	2.2	-0.6	-3.2	24.2	#	27.6	13.8	11.5	13	3.3	4	1.4
Primary goods	34	-1.8	0.4	0.7	-4.6	7.9	#	15.8	12	12.4	16.9	4.6	9	3.5
Capital goods	8.2	-7.5	2.2	-9	-4.2	50.4	#	74.9	27.3	30.3	20	2.4	-1.5	-3.7
Intermediate goods	17.2	-1.8	2.3	2	-5.3	22.4	#	54.2	22.6	14.6	11.8	5	3.8	2.5
Infrastructure/ construction	12.3	2.1	3.1	2.3	-3.5	35.1	#	46.5	20	12.3	13.5	7.8	6.6	3.8
Consumer durables	12.8	-3.2	6.5	-0.1	6.6	59.9	#	80.4	28	19.4	11.1	-1.9	-3.6	-5.6
Consumer non-durables	15.3	-0.7	1.9	-5.4	-3.8	29.2	#	0.2	-3.9	-2.3	5.9	0.2	0.9	0.8

Red- Negative growth, Yellow- Growth rate positive but less than 5 per cent, Green- Positive and more than 5 per cent
Source: Survey calculations based on MOSPI data. # In view of the circumstances mentioned in the Press Release for IIP dated 11th June 2021, the indices for April 2021 are not comparable with those of April 2020 - MOSPI

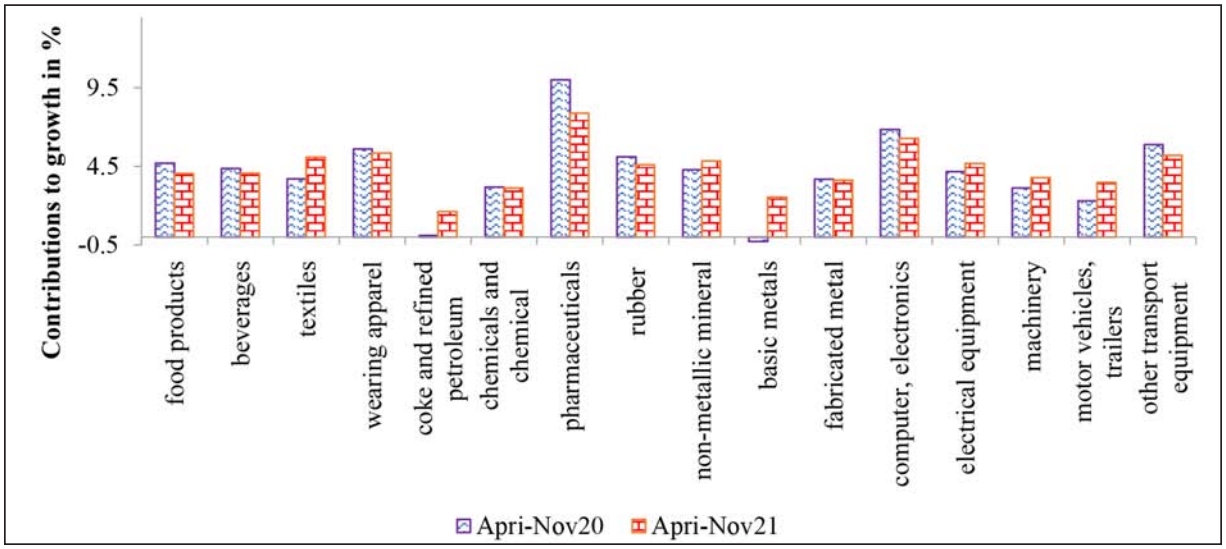
Figure 4: Indices for Broad Sectors in IIP



Source: Survey calculations based on MOSPI data

8.5 The IIP also provides data for 23 subgroups of the manufacturing sector. In the period, April-November 2021-22, all the 23 sectors recorded a positive growth. The major industrial groups like textiles, wearing apparel, electrical equipment, motor vehicles staged a strong recovery (Figure5). Improvement in the performance of the textiles and wearing apparel which is a labour-intensive industry has significant implications for employment creation.

Figure 5: Contributions of product groups to manufacturing growth - percent



Source: Survey calculations based on MOSPI data

Table 3: Growth in Manufacturing sectors in percent

Group	Weights	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21
Food Products	5.3	7.6	-1.7	-1.8	-0.3	17.1	#	13.7	8.4	4.7	9.5	0.5	4.8	-1.3
Beverages	1.0	-15.3	-7.7	-7.6	-12.9	26.5	#	-0.2	-2.3	14.3	12.4	2	5.6	0.8

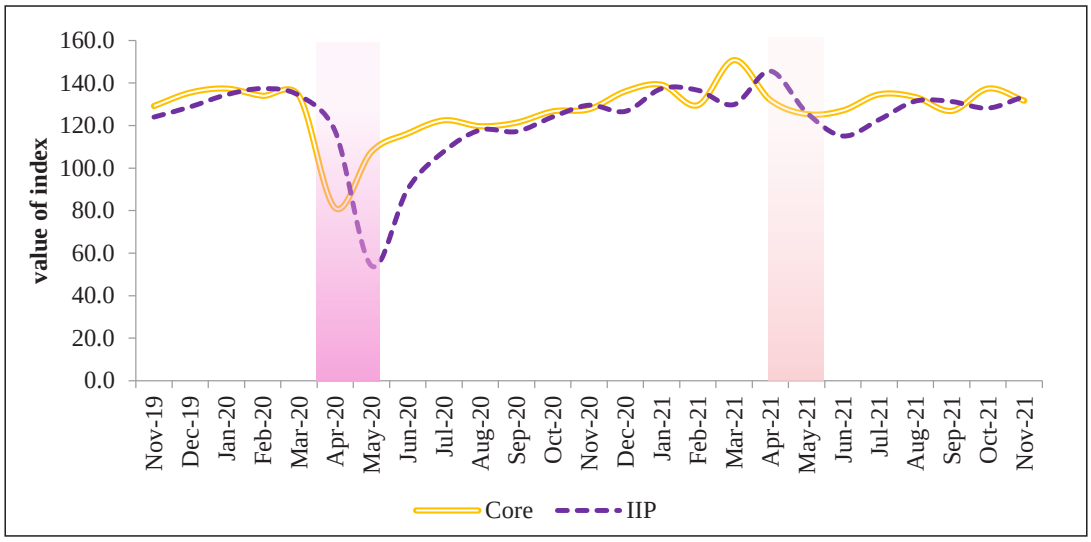
Tobacco Products	0.8	-7.5	-2.1	-4.3	-7.8	24.6	#	77.9	-19.2	-22.2	3.2	7.5	8.9	2.5
Textiles	3.3	-9	-7	-5.6	-2.7	19.2	#	161.9	76.4	25.5	24.4	13.5	11.2	8
Wearing Apparel	1.3	-26.9	-18	-20.3	-14.9	24.4	#	33.9	3.9	3.8	26.6	-0.6	36.7	33.4
Leather And Related Products	0.5	-8.7	-5.6	-4.4	-7.5	22.4	#	28.1	-5.6	3.6	0.5	-11.1	-11	-8.4
Wood And Products of Wood and Cork,	0.2	3.6	-4.2	7.5	-6.4	46.1	#	85.4	32.3	24.2	28.9	-5.8	-2.4	-4.3
Paper And Paper Products	0.9	-22.2	-17	-12.6	-10.9	29.6	#	56.5	-8	27	4.8	19.9	21.6	11.9
Printing And Reproduction of Recorded Media	0.7	-17.4	-19.9	-25.4	-28.5	2.2	#	17.7	-2.1	-0.1	5.7	2.2	7.1	3
Coke And Refined Petroleum Products	11.8	-3.3	-0.7	-0.5	-9.4	-1.1	#	18.7	5.4	7.8	11.4	5.1	13.3	3.3
Chemicals Products	7.9	0.2	7.2	5.4	-2.2	26.5	#	13.8	-0.9	4.7	5	-1.8	-2.4	-1.9
Pharmaceuticals, Medicinal Chemical and Botanical Products	5.0	-1	6.7	-8.8	-5	36.8	#	-7.3	-4.3	-6	5.4	1.1	-1.1	2.7
Rubber And Plastics Products	2.4	6.4	8.9	6	2.3	47.4	#	39.1	8.5	8	9.9	0.3	-7.1	-5.5
Other Non-Metallic Mineral Products	4.1	-3.8	-4.8	-6.1	-6.8	30.9	#	20.7	8	20.4	27	11.6	10.4	-2.8
Basic Metals	12.8	3.1	6.3	6.6	-3.5	29.2	#	54.8	24.3	11.8	9.8	6.2	7	7.3
Fabricated Metal Products, Except Machinery and Equipment	2.7	-6.6	3.3	-1	-2.3	39.5	#	45.7	18.4	10.1	12	-3.6	-8	-2.1
Computer, Electronic and Optical Products	1.6	-15.3	21.4	-1.7	20.9	105	#	47.6	9.4	-4.5	-4.6	-2.2	0.1	8.5
Electrical Equipment	3.0	-0.3	9.6	-2.9	3.4	54.2	#	94.9	36.5	43.3	36.3	13.9	-4.2	-6.6
Machinery And Equipment N.E.C.	4.8	-2.7	9.6	-7.2	-1.6	50.2	#	71.1	20.1	27.5	17.6	3.4	-6.8	-13.9
Motor Vehicles, Trailers and Semi-Trailers	4.9	0	6.8	-0.6	5.6	79	#	186	63.5	37.7	10	-9.1	-11.7	-9.2
Other Transport Equipment	1.8	-0.1	-8	6	2.7	34.8	#	128.9	43	18.3	-6.3	-17.1	-15.7	-22.4
Furniture	0.1	-26.8	-10.1	-19.3	-19.4	1.4	#	95.9	9.1	2.5	-8.5	2.6	9.4	23.1
Other manufacturing	0.9	0.2	-3.2	-3.3	4.1	50.8	#	135	46.4	69.4	69.6	57.9	38	4.7

Red- Negative growth, Yellow- Growth rate positive but less than 5 per cent, Green- Positive and more than 5 per cent
Source: Survey calculations based on DPIIT data
In view of the circumstances mentioned in the Press Release for IIP dated 11th June 2021, the indices for April 2021 are not comparable with those of April 2020

Eight Core Index (ICI)

8.6 The monthly Index of Eight Core Industries (ICI) measures collective and individual performance of production in selected eight core industries like Coal, Crude Oil, Natural Gas, Refinery Products, Fertilizers, Steel, Cement and Electricity. This is an index of the eight most fundamental industrial sectors of the Indian economy and comprises 40.27 percent of the weight in IIP.

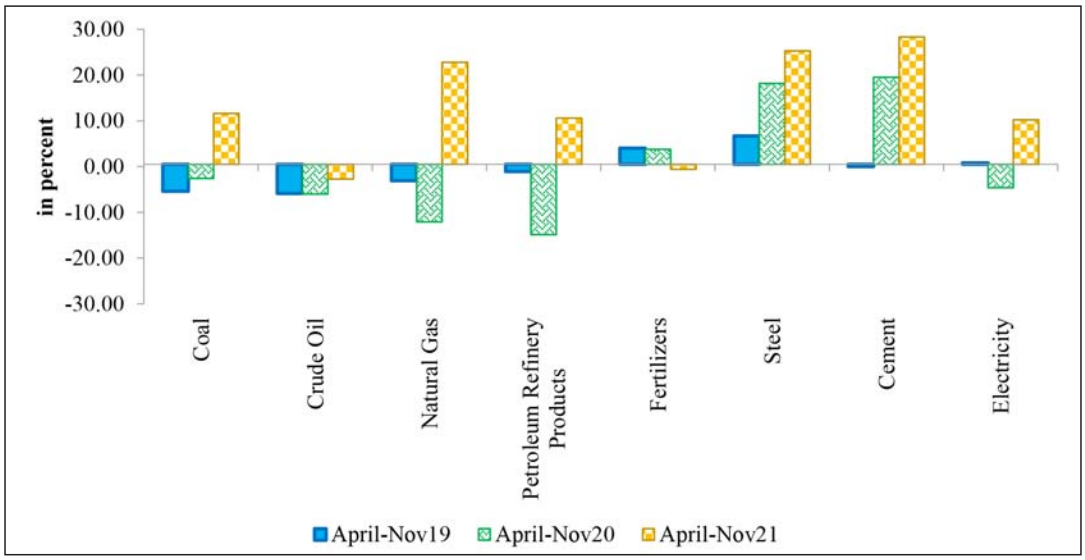
Figure 6: Index of Eight core industries and IIP



Source: Survey calculation based on data from MOSPI and DPIIT

8.7 The growth rate of the ICI index during the period of April-November2021-22was 13.7percent as compared to (-)11.1 percent in the corresponding period of last financial year. This acceleration in ICI is mainly driven by improved performance in the steel, cement, natural gas, coal and electricity. Fertilizers and crude oil registered a negative growth of 0.6 percent and 2.7 percent respectively.

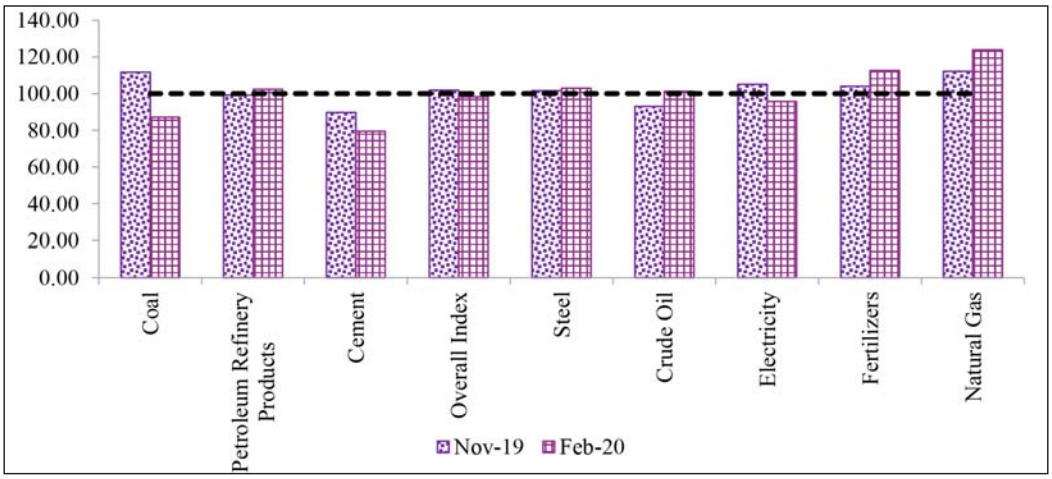
Figure 7: Index of Eight core industries and IIP



Source: Survey calculation based on data from DPIIT

8.8 The Index of eight core industries has shown a pickup in growth in almost all its components barring crude oil and fertilizers in 2021-22(April-November) as compared to2019-20(April-November) (Figure 7). Figure 8 shows the recovery of core industries in November 2021 as a percentage of the values in February 2020 and November 2019. The steel, crude oil, fertilizers, electricity and natural gas have recovered as compared to February 2020 level. In addition, the value of index for steel, fertilizers, electricity, natural gas and coal is also higher than the pre lockdown level (November 2019).

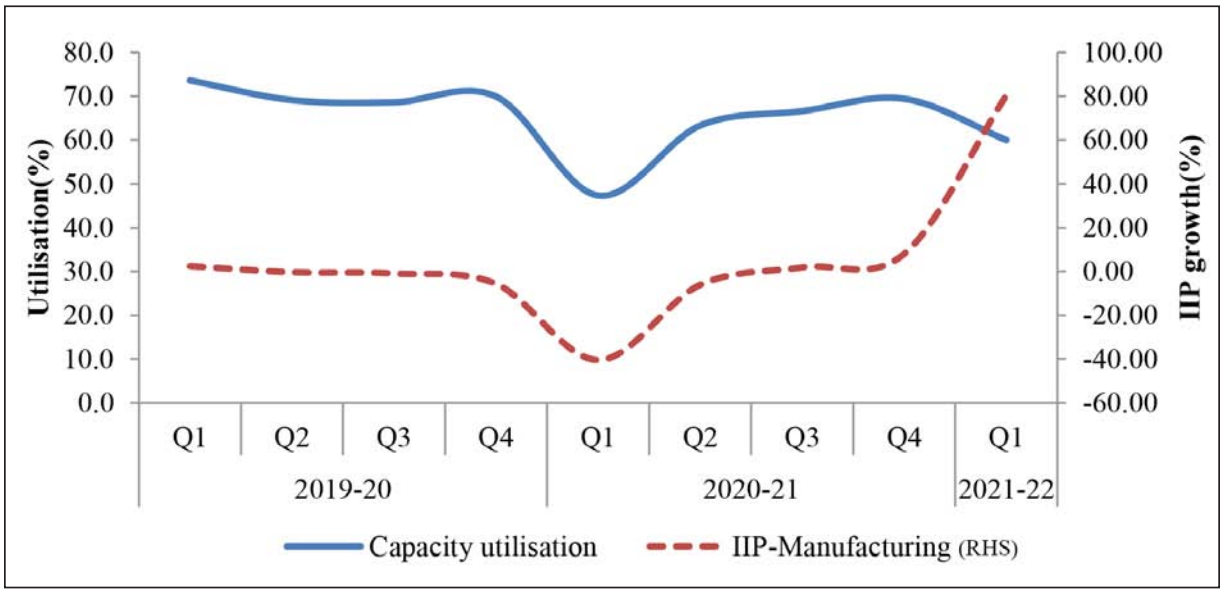
Figure 8: Eight Core Index in Oct-21 as percent of February-20 and November-19



Survey calculation based on data from DPIIT

8.9 Capacity utilization (CU) is an important economic indicator to assess demand and investment prospects of the economy. CU rates are largely able to track the pace of manufacturing activities in the economy. The growth rate of the IIP-manufacturing index and capacity utilization (Figure 9) provides a snapshot of the demand conditions for India's manufacturing sector. It is clear that the extent of CU had decreased substantially during the first quarter of 2020-21 due to the COVID-19 pandemic as severe restrictions were imposed in the country. It was, however, less severe during the second wave of COVID-19 (Q1:2021-22) mainly because the lockdown was not imposed as a country wide measure, allowing states the flexibility to decide. At the aggregate level, CU for the manufacturing sector declined to 40 percent in Q1:FY21 and then rose to 69.4 in Q4:FY21, however it fell to 60.0 in Q1:FY22.

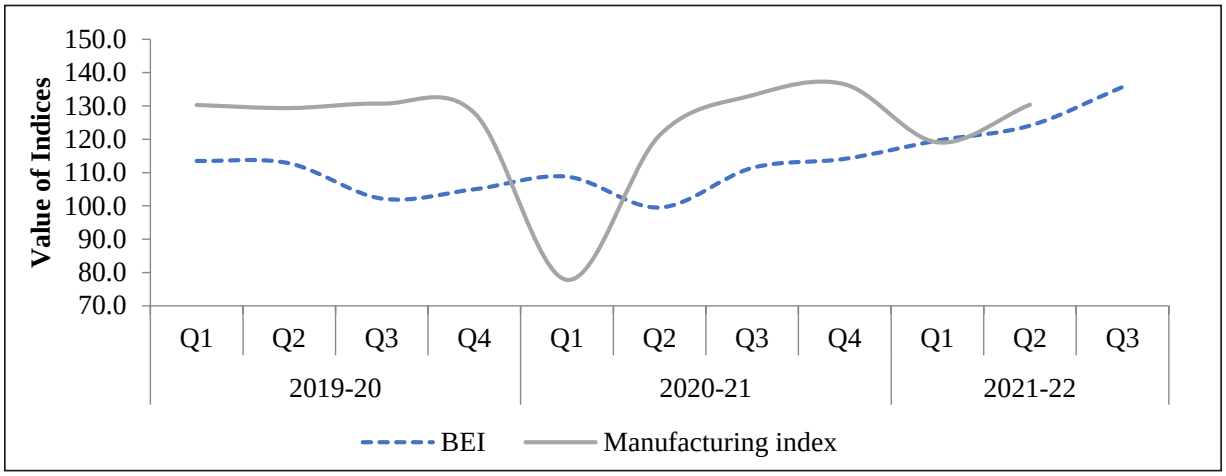
Figure 9: Capacity Utilization and IIP (manufacturing)



Source: Survey calculations based on data from MOSPI and RBI

8.10 Another indication of optimism about the economic performance is the RBI's Business Expectation Index (BEI). This index gives a glimpse of the demand conditions in the manufacturing sector by combining parameters which include overall business situation, production, order books, inventory of raw material and finished goods, profit margin, employment, exports and capacity utilization. BEI remained stable with only a slight downturn in the second quarter of 2020-21 owing to the onset of the pandemic in the first quarter of that year (figure 10). Since then, it has been on an upswing. It increased to 124.1 in theQ2:FY22 and to 135.7 in the Q3: FY22 as compared to 119.6 in the first quarter of the same year. The uptick in the data suggests that the manufacturers perceive further improvement in overall business situation in Q3:FY22; and exhibit optimism for Q4:FY22. Capacity utilization and employment conditions are expected to improve.

Figure 10: Manufacturing Index and Business Expectation Index

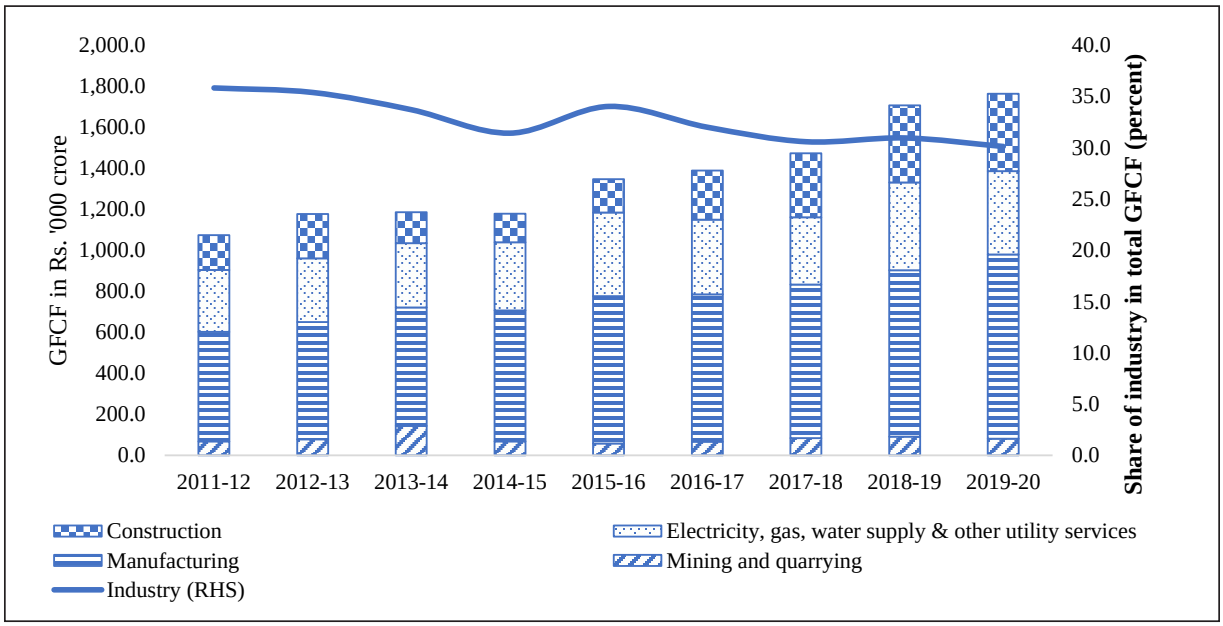


Source: Survey calculations based on data from MOSPI and RBI

GROSS FIXED CAPITAL FORMATION

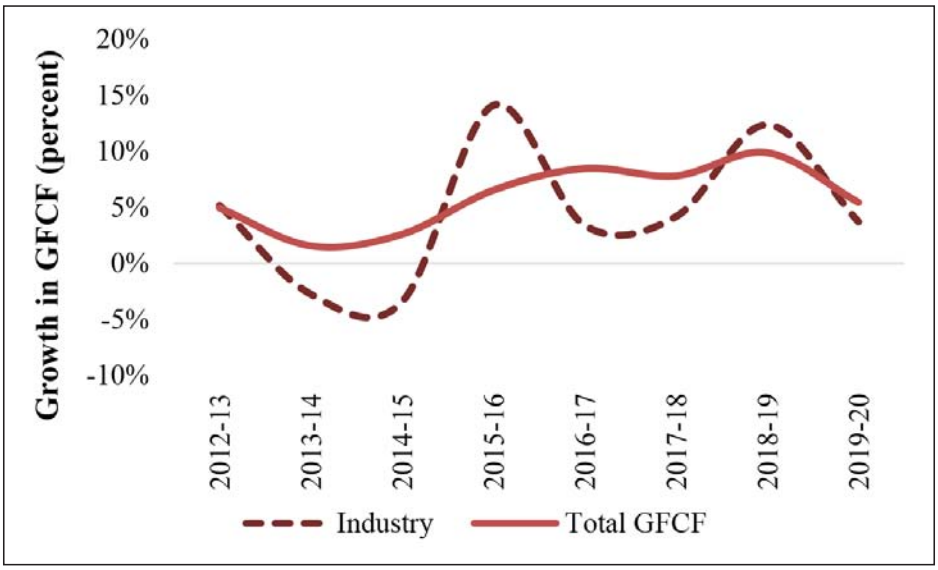
8.11 Gross fixed capital formation (GFCF) is the gross addition to fixed assets like machinery and equipment, intangible assets and indicates the state of investments in the economy. During 2019-20, the share of industrial sector in total GFCF in the economy (at current prices) was recorded at 30.1 per cent, which is slightly lower than 31 per cent in the previous financial year (Figure 11). Within the industrial sector, the share of manufacturing in GFCF was 51 per cent, followed by electricity at 23 per cent, construction at 21 per cent, and mining with 5 per cent. While aggregate GFCF (at constant prices) grew by 9.9 per cent and industrial GFCF grew by 12.4 per cent in 2018-19, it grew by 5.4 per cent and 3.7 per cent respectively in 2019-20 (Figure 12). During 2019-20, GFCF in the mining and electricity sectors registered a negative growth of 12.9 per cent and 6 percent respectively, but the GFCF grew by 10.2 and 4.4 percent in the manufacturing and construction sector respectively on y-o-y basis.

Figure 11: GFCF in Industrial sectors



Source: Survey calculations based on MoSPI data, based on GFCF at constant prices.

Figure 12: Total and Industrial GFCF - Growth in percent



Source: Survey calculations based on MoSPI data, based on GFCF at constant prices.

Credit in Industry

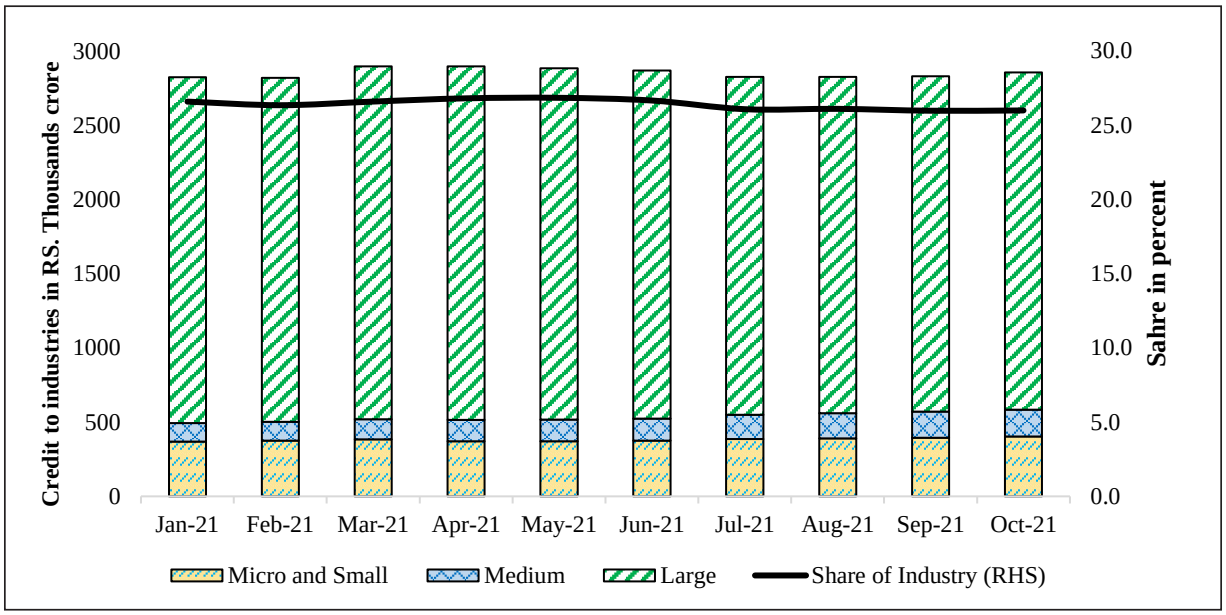
8.12 Gross bank credit to the industrial sector, recorded a growth of 4.1 percent in October 2021 (Y-o-Y basis) compared to a negative growth of 0.7 growth in October2020. The share of industry in non-food credit stood at 26 percent in October 2021. Certain industries such as mining, textiles, petroleum, coal products and nuclear fuels, rubber, plastic and infrastructure have shown consistent improvement in credit growth.

Table 4: Industry wise Deployment of Gross Bank credit - Variation in prevent (Year-on-Year)

Industry	Oct-20	Mar-21	Oct-21
Mining and Quarrying (incl. Coal)	4.2	4.9	16.5
Food Processing	5.1	7.8	6.5
Beverage and Tobacco	2.5	-3.6	0.5
Textiles	-0.2	4.7	7.0
Leather and Leather Products	6.3	1.8	-3.3
Wood and Wood Products	7.0	8.6	6.1
Paper and Paper Products	10.2	14.7	9.9
Petroleum, Coal Products and Nuclear Fuels	14.9	-8.1	13.1
Chemicals and Chemical Products	-2.3	-6.5	7.1
Rubber, Plastic and their Products	5.4	6.2	23.8
Glass and Glassware	1.4	-5.1	-15.8
Cement and Cement Products	-4.6	-10.1	-21.5
Basic Metal and Metal Product	-4.7	-6.1	-16.3
All Engineering	-16.8	-6.3	6.6
Vehicles, Vehicle Parts and Transport Equipment	7.1	1.3	-6.1
Gems and Jewellery	-3.4	-1.6	9.2
Construction	4.1	-8.2	-6.0
Infrastructure	0.1	3.7	8.9
Other Industries	0.6	4.5	10.9
Industries	**-0.7**	**0.5**	**4.1**

Source: Survey calculations based on RBI data.

Figure 13: Credit to Industry and its share in Total Non-food credit (percent)



Source: Survey calculations based on RBI data.

FDI in Industries

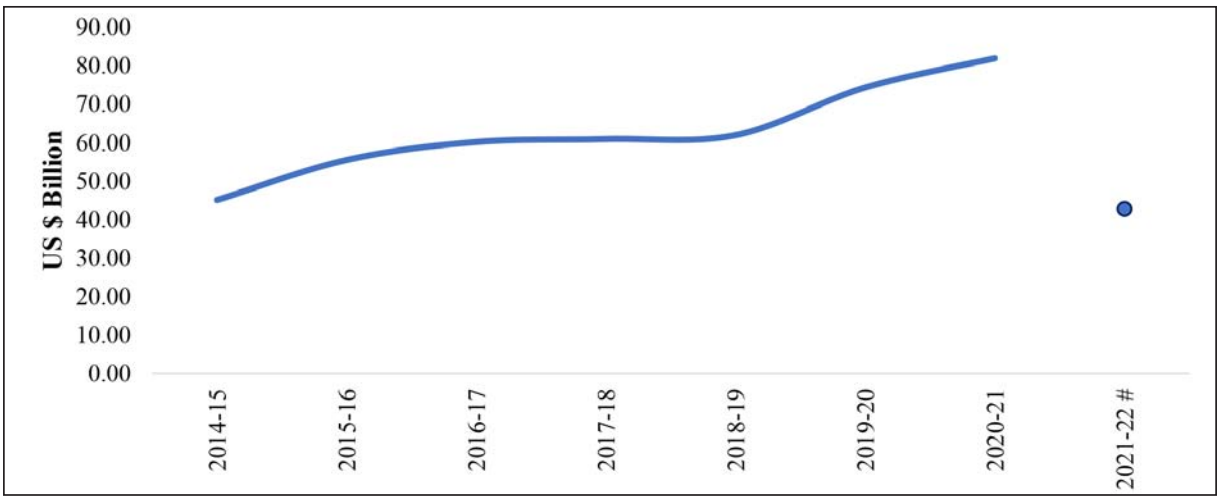
8.13 Measures taken by the Government to put in place an enabling investor friendly FDI Policy has resulted in increased FDI inflows setting up new records. FDI inflows in India stood at US $

45.14 billion in 2014-15 and have continuously increased since then. India registered its highest ever annual FDI inflow of US$ 81.97 billion (provisional) in the2020-21 reflecting a growth of 10 percent as compared to the previous year. The increase has been on the back of growth of 20 per cent in 2019-20. In the year 2021-22, FDI inflow grew by 4 per cent in the first six months to reach US$ 42.86 billion as compared to US$ 41.37 billion for the same period of last year.

8.14 Over the last seven financial years (2014-21), India received FDI inflow worth US$ 440.27 billion which is nearly 58 percent of the FDI received by the country in the last 21 years (US$ 763.83 billion).

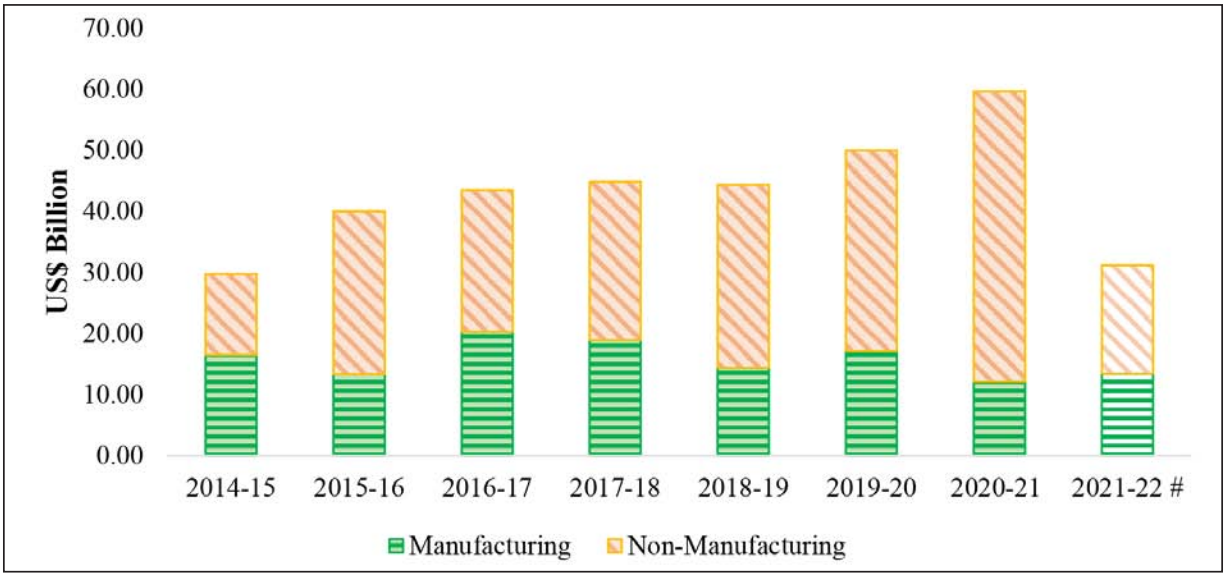
8.15 Several initiatives (Box 1) have been taken by the Government since April 2020 to further reform the FDI policy framework to ensure against opportunistic takeovers and acquisitions while also facilitating an increased flow of long-term capital, global technology, processes and international best practices to support the growth of these sectors.

Figure 14: Total FDI Inflows



Source: Survey calculation based on data from DPIIT. #April to Sept 2021

Figure 15: FDI Equity Inflows in Manufacturing & Non-Manufacturing Sector



Source: Survey calculation based on data from DPIIT. # April to Sept 2021

Box 1: FDI Policy reforms and Other Measures during the Covid-19 Pandemic period

The changes in the FDI policy can be broadly categorized into measures taken to improve foreign participation while protecting Indian industry from opportunistic takeovers, to enhance transparency and rationalization of processes and steps to monitor and expedite implementation.

a. Measures taken to allow greater foreign participation

(i) **Defence Sector**: The FDI policy amendments, notified vide Press Note 4 (2020 series) dated 17.09.2020, have been carried out to realize the vision of an AtmaNirbhar Bharat. Now, FDI in defence sector is allowed up to 74 per cent through automatic route (from earlier 49percent) for companies seeking new industrial licenses. FDI beyond 74 percent and up to 100 per cent will be permitted under Government route. For existing FDI approved holders/defence licensees, infusion of fresh foreign investment up to 49percent resulting in change in equity/ shareholding pattern can be done by making declaration within 30 days.

(ii) **Insurance Sector:** Government issued Press Note 2(2021) dated 14.06.2021 to raise the permissible FDI limit from 49percent to 74percent in Insurance Companies under the automatic route and allow foreign ownership and control with safeguards.

(ii) **Petroleum & Natural Gas sector:** Press Note 3 (2021) dated 29.07.2021 has been issued to permit foreign investment up to 100percent under the automatic route in cases where the Government has accorded an 'in-principle' approval for strategic disinvestment of a Public Sector Undertaking (PSU) engaged in the Petroleum and Natural Gas Sector.

(iv) **Telecom sector:** Press Note 4 (2021) dated 06.10.2021 has been issued to permit foreign investment up to 100percent under automatic route in Telecom services sector.

b. Curbing opportunistic acquisitions/takeovers: vide Press Note 3 (2020) dated 17.04.2020, Government amended the FDI policy according to which an entity of a country, which shares land border with India or where the beneficial owner of an investment into India is situated in or is a citizen of any such country, can invest only under the Government route. Further, in the event of the transfer of ownership of any existing or future FDI in an entity in India, directly or indirectly, resulting in the beneficial ownership falling within the restriction/purview of the said policy amendment, such subsequent change in beneficial ownership will also require Government approval.

c. Measures to improve **transparency and to rationalize processes include amendment of the Standard Operating Procedure (SOP)** to improve ease of processing FDI proposals.

d. 'FDI Monitoring Cell' has been formed which follows up with applicant/ investor, to expedite FDI proposals with a view identify and hurdles if any. An Inter-Ministerial Committee (IMC) has been constituted under the Chairpersonship of Secretary, Department for Promotion of Industries and Internal Trade to take appropriate decision on delayed proposals and those escalated by Administrative Ministries/ Departments.

Performance of Central Public Sector Enterprises

8.16 CPSEs are an important constituent of the Indian industry. As on 31.03.2020, 256 CPSEs were operational. The overall net profit of operating CPSEs during 2019-20 stood at

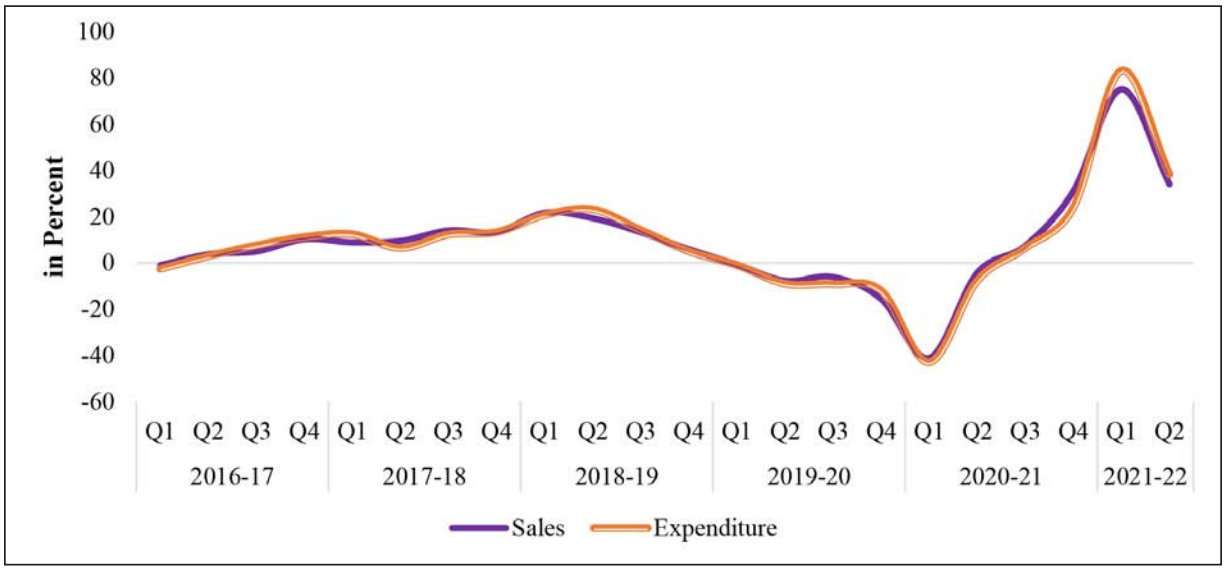
Rs. 93,295 crore Contribution of all CPSEs to central exchequer by way of excise duty, GST, corporate tax, dividend, etc. stood at Rs. 3,76,425 crore. The CPSEs across sectors employed 14,73,810 persons, of which 9,21,876 were regular employees. There were 58 listed CPSEs as on 31.03.2020 with market capitalization of Rs. 8.2 lakh crore. In 2021-22 till 31st Oct, 2021, 2021-22 CPSEs incurred capital expenditure of Rs. 1,06,749 crores against the annual target of Rs. 2,69,742 crore. During 2020-21, a total expenditure of Rs. 2,04,243 crore was incurred as CAPEX against a projected expenditure of Rs 2,20,249 cr.

8.17 In accordance with Union Budget 2021-22 announcement, the government has approved a policy of strategic disinvestment of public sector enterprises that will provide a clear roadmap for disinvestment in all non-strategic and strategic sectors. The guideline for implementation of new public sector enterprise policy for CPSEs have been notified on 13th December, 2021. This will help the government to make use of disinvestment proceeds to finance various social sector and developmental programmes while disinvestment shall infuse private capital, technology and best management practices in the disinvested CPSEs. The Government notified the new Public Sector Enterprise (PSE) Policy on 4 February 2021. The new PSE Policy envisages classification of CPSEs into Strategic and Non-Strategic Sectors and exempts certain CPSEs such as those setup as not-for-profit companies under the Companies Act, 2013 or those supporting vulnerable and weaker sections of society, from the scope of the Policy. The strategic sectors as per the policy are as under: atomic energy; space and defense; transport and telecommunication; power; petroleum; coal and other minerals; banking, insurance, and financial services. Under the 4 broad baskets in which the strategic sectors are classified-i.e., national security, critical infrastructure, energy and minerals and financial services- only a bare minimum presence of CPSEs in the aforesaid strategic sectors is to be maintained. The non-strategic CPSEs will be privatized or otherwise shall be closed. Thus, the policy on public sector enterprises provides a clear path for disinvestment in all non-strategic and strategic sectors and strengthens the idea of Minimum Government - Maximum Governance

Corporate performance

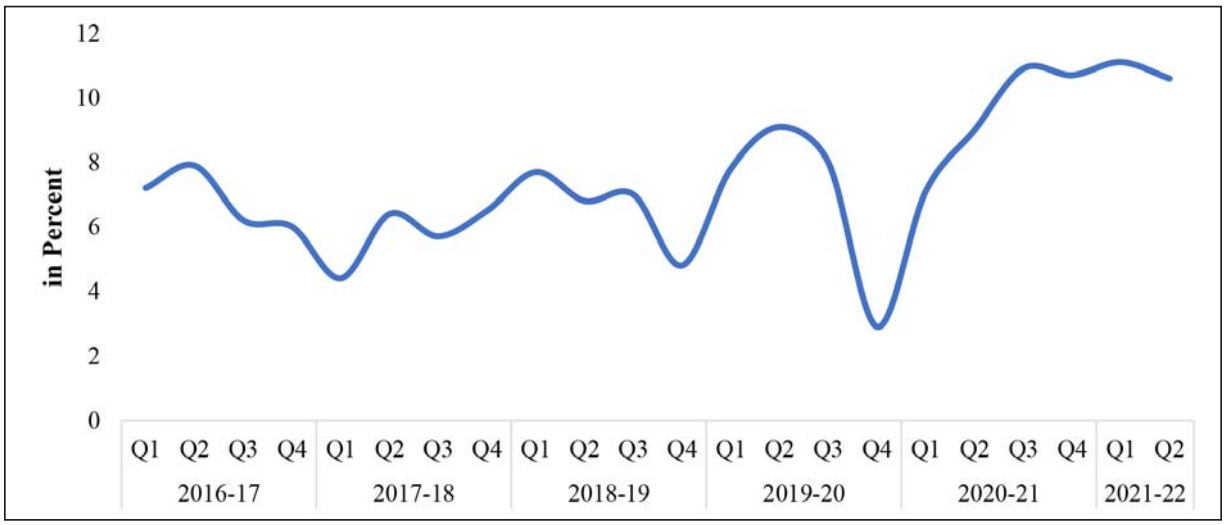
8.18 With economic recovery, concomitant improvement in demand and improved business sentiments have had a positive effect on the performance of corporate sector. Further, in response to favourable base effect, sales of 1,687 listed manufacturing companies recorded steady and broad-based growth of 34.0 percent inQ2:FY22 as compared to (-)4.3 percent growth in Q2:FY21, on an annual (y-o-y) basis. Expenditure in these companies also increased by 38.3 percent in Q2:FY22 as compared to a decrease of 7.7 percent in Q2:FY21. The net profit to sales ratio of these companies was increasing despite the pandemic shock to reach a level of 10.6 percent in Q2:F22 reflecting better profit prospects for these companies in the current financial year. The improvement in profitability of large corporates on the whole indicates that the companies withstood the pandemic shock well and many have rebounded.

Figure 16: Listed Manufacturing Companies in the Private Corporate Sector - Growth (Y-o-Y)



Source: Survey Calculations based on data from RBI

Figure 17: Net Profit to Sales ratio of Listed Manufacturing Private Companies



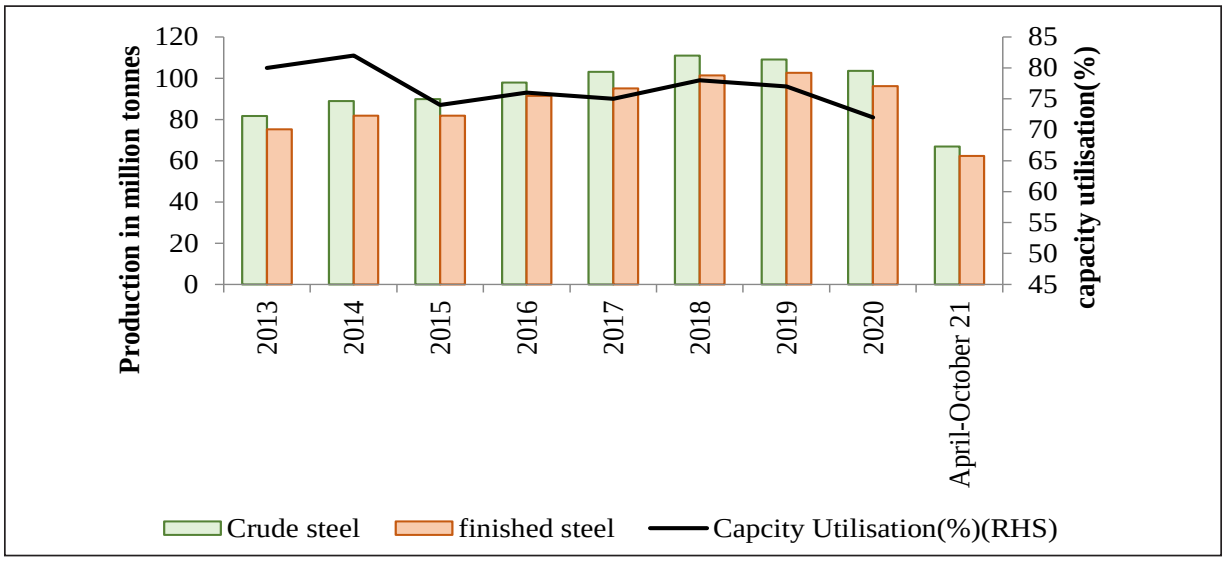
Source: Survey Calculations based on data from RBI

SECTOR WISE PERFORMANCE AND ISSUES IN INDUSTRY

Steel

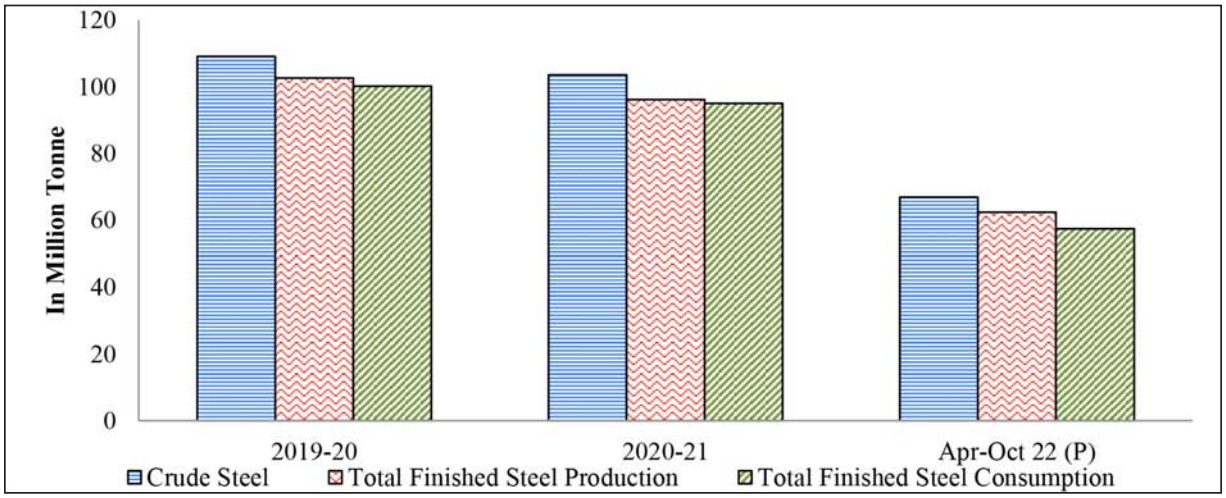
8.19 The performance of the steel industry is pivotal for the growth of the economy. Despite being hit by COVID-19, the steel industry has bounced back with cumulative production of crude and finished steel in 2021-22(April-October) at 66.91 MT and 62.37 MT, an increase of 25.0percent and 28.9percent respectively (Figure 18), over corresponding period last year while consumption of finished steel at 57.39 MT increased by 25.0percent over the same period (Figure 19).

Figure 18: Production and capacity utilization



Source: Survey calculations based on data from Ministry of Steel *indicates provisional figure

Figure 19: Production and Consumption - Steel



Source: Survey calculations based on data from M/o Steel. P-provisional

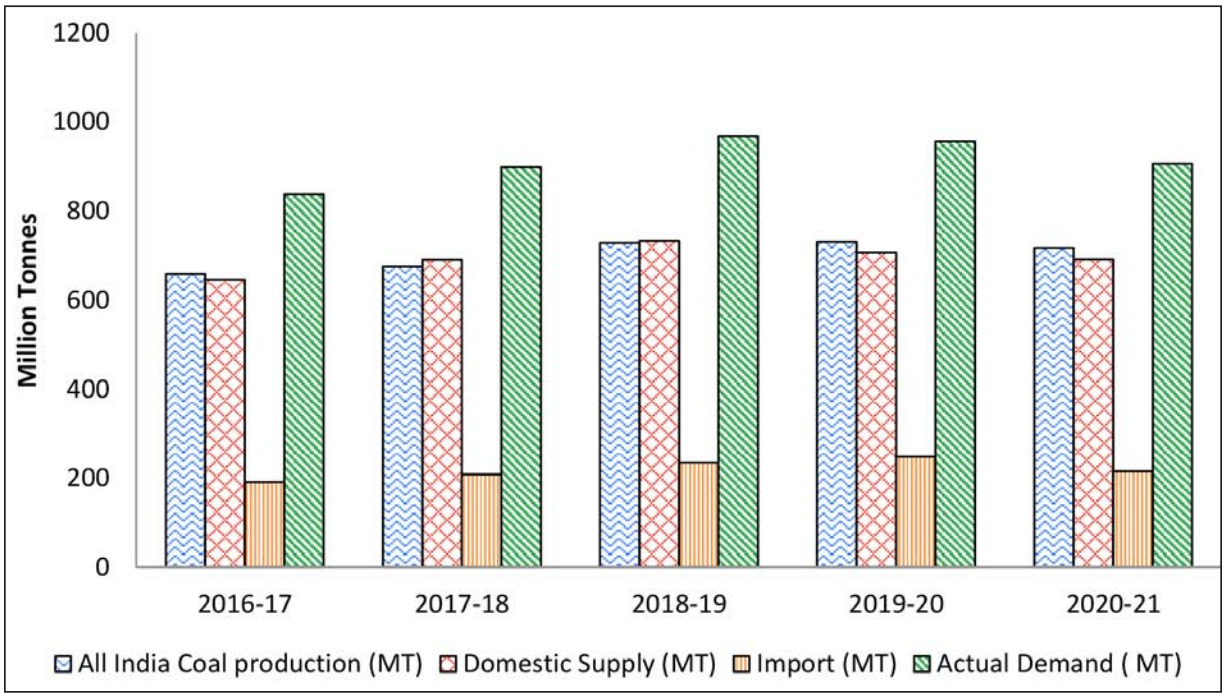
8.20 It is important to point out that global steel production has slowed down. The reduction in world output of steel is because of reduced global production. According to press release by World Steel Association (November, 2021) world crude steel production was 143.3 million tonnes (Mt) in November 2021, a 9.9 percent decrease compared to November 2020. With economic recovery, the global demand for steel is slated to increase this year and the next. The steel industry is expected to face increase in demand in the next financial year also. This is mainly on account of the Government of India's focus on infrastructure development including roads, railways and defence production. The PLI Scheme for specialty steel is well timed to provide the necessary incentive towards investment in value added steel -a step in the direction to increase its production for internal consumption as well as exports. Additional measures such as Domestically Manufactured Iron and Steel Products (DMI&SP) Policy, Quality Control Order (QCO) covering carbon steel, alloy steel, tin plate, tin free steel and stainless steel and a R&D scheme viz. "Promotion of R&D in Iron & Steel Sector" to address the technological

issues faced by the sector also aim to strengthen the industry and to ensure that increase in production of steel is achieved in a sustainable manner.

Coal

8.21 Coal is the most important and abundant fossil fuel in India and accounts for 55percent of the country's energy need. Coal production increased by 12.24 percent in April-October 2021 as compared to (-) 3.91 percent in April-October 2020. Overall production of raw coal in India during the year 2020-21 was 716.08 million tonnes (provisional) as compared to 730.87 million tonnes achieved in the previous year 2019-20(figure 20).

Figure 20: Coal - Production, Demand and imports of Coal



Source: Survey calculations based on data from M/o Coal

8.22 Despite the push for renewables, as per the Draft National Energy Policy of Niti Aayog, the demand for coal is expected to remain in the range of 1.3-1.5 Billion Tonnes by 2030. Nonetheless, several initiatives are being taken by the coal lignite producing PSUs to reduce their carbon footprints. By 2020-21, the PSUs had brought 56000 Ha land under green cover creating a carbon sink of about 5.0 Lakh Ton of CO2 equivalent/Year. It is envisaged to bring about 30000 Ha of addition land (in and around coal mining areas) under green cover by plantation of around 75 million trees by 2030. Further, as on 31.03.2021, the PSUs have installed renewable capacity of 1496 Megawatts and during the next 5 years it is planned to install additional 5560 Megawatts of renewable capacity with substantial carbon offset potential.

8.23 Opening up of coal mining for private sector is the most ambitious coal sector reform. This will bring efficiency & competition in coal production, attract investments & best-in-class technology, and help create more jobs in the coal sector. So far, 28 coal mines have been successfully auctioned. Out of these, 27 coal mines have been auctioned to private companies. Auction process for 88 coal mines is underway.

Micro Small Medium Enterprise

8.24 Micro, Small & Medium Enterprises (MSMEs) contribute significantly to the economic and social development of the country by fostering entrepreneurship and by generating employment opportunities. The relative importance of MSMEs can be gauged from the fact that the share of MSME GVA in total GVA (current prices) for 2019-20 was 33.08 per cent.

8.25 The The government has taken several initiatives to nurture and promote the MSMEs. The revision in the definition of MSMEs brought in w.e.f. 1st July, 2020 as part of the AtmaNirbhar Bharat package introduced a composite-criteria of investment and annual turnover- and identical limits for manufacturing and services sector (Table 5). The modified definition of MSMEs will facilitate expansion and growth of these enterprises. The resulting economies of scale can enhance productivity without the MSMEs losing out on several government incentives including market support, export promotion, preferential procurement in the public sector and incentives through the Micro Small Enterprises- Cluster Development Programme (MSE-CDP), Prime Minister Employment Generation Programme (PMEGP) and Scheme of Fund for Regeneration of Traditional Industries (SFURTI) and enabling of IT ecosystems. This enabling environment will promote competition and avoid dwarfism among MSMEs. The recent measures taken by the Government to improve the ease of doing business for the MSMEs include the launch of the new Udyam Registration Portal in July 2020. The registration process under this is fully online, digital, paperless and is based on self-declaration. No documents or proof are required to be uploaded for registering as a micro, small and medium enterprise. Aadhaar and PAN are required for registration and details on investment and turnover of enterprises are taken automatically from relevant Government databases. New registration process has boosted the ease of doing business for MSMEs by reducing transaction time and costs. As on 17.01.2022, 66,34,006 enterprises have registered on the Udyam portal, out of which 62,79,858 are micro; 3,19,793 are small; and 34,355 are medium enterprises. Further, among the new measures, the retail and wholesale trades were included as MSMEs and they are allowed to be registered on Udyam Registration Portal. However, the benefits to retail and wholesale trade MSMEs are to be restricted to Priority Sector Lending only. In this regard, now, street vendors can also register as retail traders on Udyam Registration (UR) portal and avail the benefit of priority sector lending.

Table 5: Definition of MSMEs - Old and New

	Old Definition		New Definition	
	Manufacturing	**Services**	**Manufacturing**	**Services**
Micro	Investment in Plant and Machinery: Does not exceed Rs. 25 Lakh.	Investment in Equipment: Does not exceed Rs. 10 Lakh.	Investment in Plant and Machinery or Equipmentand turnover: The investment in plant and machinery or equipment does not exceed Rs. 1 Crore and turnover does not exceed Rs. 5 crores.	
Small	Investment in Plant and Machinery: More than Rs. 25 lakh but does not exceed Rs. 5 crore	Investment in Equipment: More than Rs. 10 Lakh but does not exceed Rs. 2 crore	Investment in Plant and Machinery or Equipment and turnover :The investment in plant and machinery or equipment does not exceed Rs. 10 crore and turnover does not exceed Rs. 50 crore.	

Medium	Investment in Plant and Machinery: More than Rs. 5 crore but does not exceed Rs. 10 crore	Investment in Equipment: More than Rs. 2 crore but does not Rs. 5 crore.	Investment in Plant and Machinery or Equipment and turnover: The investment in plant and machinery or equipment does not exceed Rs. 50 crore and turnover does not exceed Rs. 250 crore.

8.26. The CHAMPIONS portal (www.champion.gov.in) is an ICT based technology system for making the smaller units big by helping and handholding them. A network of control rooms is created in a Hub & Spoke Model where hub is situated in the Ministry of MSME, New Delhi whereas 68 spokes are located across the country in various offices and institutions of Ministry. As on 16.01.2022, 42,304 grievances have been received, out of which 41,965 (99.1%) grievances have been replied.

The key features of the portal include:

- Information dissemination: Regular updates on recent development in MSME sector.
- With a view to resolve the grievances in a fast track manner, all Nationalised Banks, a good number of Private/Regional Rural Banks, State Financial Corporations, Central Government Ministries/ Departments, State Governments and CPSEs have been onboarded on the portal.
- Scheme/Programme wise mapping of officials of the Ministry for fast track responses of grievances.
- Integration with various portals such as MSME Samadhaan, Udyam Registration, CPGRAM etc.

Textiles

8.27 Textile industry is the second largest employment generator in the country, next only to agriculture. In the last decade, close to Rs. 203,000 crores have been invested in this industry with direct and indirect employment of about 105 million people, a major part of which is women. Despite the industry being deeply affected by the lockdown, it has shown a remarkable recovery with positive contribution to growth, as reflected by IIP, of 3.6 percent during April-October 2020.

8.28 Production-Linked Incentive (PLI) Scheme for Man Made Fiber (MMF) segment and technical textiles, notified in September 2021, for enhancing India's manufacturing capabilities and enhancing exports will focus on promotion of 40 MMF apparel and 10 Technical textiles lines and create global champions. It is estimated that over the period of five years, the PLI Scheme for Textiles will lead to fresh investment of more than Rs.19,000 crore, cumulative turnover of over Rs.3 lakh crore will be achieved under this scheme and, will create additional employment opportunities of more than 7.5 lakh jobs in this sector.

8.29 Further in a major support to enhance the competitiveness of the sector, the government notified the setting up of 7 PM MEGA INTEGRATED TEXTILES REGION AND APPAREL PARK (MITRA) in October 2021 with a total outlay of Rs. 4,445 crores. The scheme is expected to further the vision of *AtmaNirbhar Bharat* and to position India strongly on the

global textiles map. PM MITRA inspired from 5F's -*farm to fibre; fibre to factory; factory to fashion; fashion to foreign* -will strengthen the textile sector by developing integrated large scale and modern industrial infrastructure facility for entire value-chain of the textile industry. It is expected to reduce the logistics cost and will help India in attracting investments, and boosting employment generation. Competitiveness Incentive Support (CIS) of ₹300 Crore will also be provided to each PM MITRA Park for early establishment of textiles manufacturing units in PM MITRA Park. Such support is crucial for a new project which has not been able to break even and needs support till it is able to scale up production and be able to establish its viability. PM MITRA Park will be developed, by a Special Purpose Vehicle which will be owned by the State Government and Government of India, in a Public Private Partnership (PPP) Mode.

Electronics Industry

8.30 World over, electronics is recognised as a 'meta-resource'. Electronics industry is the world's largest and fastest growing industry and is increasingly finding applications in all sectors of the economy. With its impact in developing infrastructure, raising productivity, increasing efficiency in delivery of services, and enabling social transformation, it is accepted as a key enabler in the country's economic development.

8.31 Government accords high priority to electronics hardware manufacturing. The government has therefore notified the National Policy on Electronics 2019 (NPE 2019) on 25.02.2019 to position India as a global hub for Electronics System Design and Manufacturing (ESDM) by encouraging and driving capabilities in the country for developing core components, including chipsets. Additionally, NPE 2019 attempts to catalyze the growth of Indian electronics ecosystem through the (i)Production Linked Incentive (PLI) Schemes for Large Scale Electronics Manufacturing, (ii) PLI Scheme for IT Hardware; (iii) Scheme for Promotion of Manufacturing of Electronic Components and Semiconductors (SPECS); and (iv) Modified Electronics Manufacturing Clusters 2.0 (EMC 2.0).PLI for Large Scale Electronics Manufacturing has been notified on April 01, 2020 which provides an incentive of 4 to 6 percent on incremental sales (over base year)to eligible companies involved in mobile phone manufacturing and manufacturing of specified electronic components, including Assembly, Testing, Marking and Packaging(ATMP) units (See box 3 for details on PLI scheme). As per June 2021 Quarterly Revenue Recover (QRR) the scheme has resulted in investment of Rs. 2,595 crore and production worth Rs.67,275 crore of which, 31 percent or Rs. 20,568 crore was exported. PLI scheme for IT Hardware was notified on March 03, 2021 which extends an incentive in the range of 1 to 4 percent on net incremental sales (over base year) of goods manufactured in India and covered under the target segment, to eligible companies, for a period of four years. The target segment under PLI Scheme includes (i) Laptops (ii) Tablets (iii) All-in-One PCs and (iv) Servers. As per Q2:FY21-22QRR, total sales of manufactured goods in target segment stood at Rs. 503 crores with Rs. 16.50 crore investment. Further, the government has through the SPECS scheme and the EMC 2.0 provided an enabling environment in the form of financial incentive for capital expenditure and by creating plug and play facilities with the view of attracting major electronics manufacturers.

8.32 Recently, the government has approved an outlay of Rs. 76,000Crore (>US$ 10 Bn) for the development of Semiconductors and Display Manufacturing Ecosystem. Government's intervention to boost this industry has come at a time when the global economy is facing an acute shortage of semiconductors due to severe disruptions in supply chains. Several companies from diverse industries have been forced to either shut or curtail production in response to breakdown of supply chains. The PLI and other schemes to boost semiconductors will not only help domestic companies to overcome the challenges posed by COVID 19 but also assist them to become globally competitive especially in chip making. Semiconductors are integral part of modern technology used in automobiles and its components, electronic and medical devices. The comprehensive interventions being introduced by the government will aid in the establishment of an ecosystem that boosts semiconductor production in India.

Box 2: PARAKH - A Unified Laboratory Network

Recognizing that testing and certification are crucial for enhancing the competitiveness of Indian goods and services, a portal called "PARAKH" has been set up in June 2021, wherein all the accredited, certified and recognised laboratories in the country would be mapped on a Geographic Information System (GIS). This united laboratory network has been developed with the support of Ministry of Electronics and Information Technology (MEITY), Bhaskaracharya National Institute of Space Applications and Geo Informatics, Gujarat (BISAG) and the concerned line ministries/ departments of the Government of India. Over 6,580 laboratories have already been mapped on the portal including NABL accredited laboratories. These also include 477 BIS empaneled and recognized laboratories. Laboratories recognized by FSSAI, EIC, APEDA and CSIR have also been mapped on the portal. The portal makes it possible to search labs for a particular product, standard, test method in a state or a city and also find nearby labs. It also enables finding the scope of accreditation and test methods of a laboratory. The portal allows for adding new private laboratories and booking a test through it.

Box 3: Production Linked Incentives Schemes

PLI Schemes launched in March 2020, are a cornerstone of the Government's push for achieving an AtmaNirbhar Bharat. The idea is to provide support to the sectors, regain dominance in global trade and be more prepared for the volatilities and shocks in global supply chains as opposed to the protectionist approach of the pre-1991 era. The objective of the scheme is to boost domestic manufacturing in sunrise and strategic sectors, improve cost competitiveness of domestically manufactured goods, enhance domestic capacity and economies of scale. The scheme is specifically designed to attract investments in sectors of core competency and cutting-edge technology. The selection of sectors has been done based on the sectors' abilities to introduce latest technology, generate direct and indirect employment by reaching global scales while increasing competitiveness to ensure penetration of Indian companies in the global value chains.

This scheme is expected to make domestic manufacturing globally competitive and will create global champions in manufacturing. The Government has already committed Rs.1.97 lakh crores, over 5 years starting from 2021-22 in 13 sectors. Recently, PLI in the 14th sector - drones and drone components has been included with an additional layout of Rs. 120 crores. The initial 13 sectors are Electronic/Technology Products, Medical devices, Drug intermediaries and APIs, Mobile Manufacturing and Specified Electronic Components, Pharmaceuticals drugs, Telecom & Networking Products, Telecommunications, Food Products, White Goods (ACs & LED), High Efficiency Solar PV Modules, Automobiles & Auto Components, Advance Chemistry Cell (ACC) Battery, Textile Products: Man Made Fabrics segment and technical textiles and Specialty Steel.

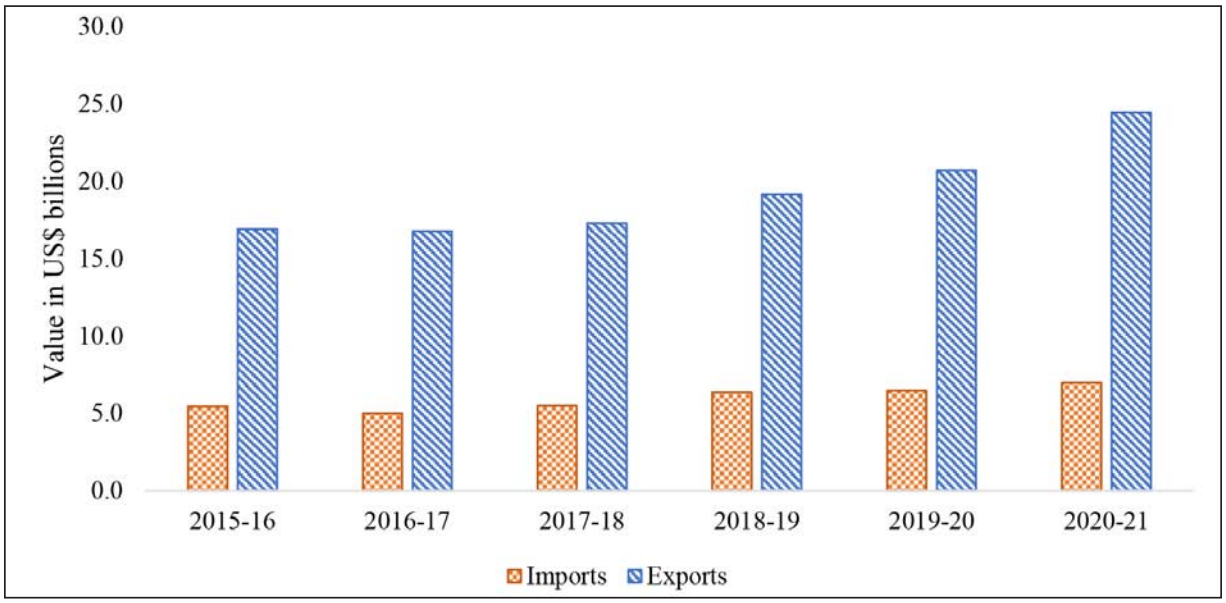
So far, the 13 initial schemes have been notified and guidelines have been issued where required. The first three schemes notified were for mobile phones and specified electronic components, APIs/Drug intermediates and medical devices. In case of mobile phones and specified electronic components, in the first round, 16 applications worth Rs. 36440 crores were approved and in the second round, 18 applications worth Rs. 483 crores were approved by the competent authority. In case of APIs/drug intermediates and medical devices, 42 applications worth Rs. 4347.26 crore and 13 applications with a committed investment of Rs. 798.93 crores have been approved so far by the competent authority, respectively.

Pharmaceuticals

8.33 Indian Pharmaceutical industry ranks third in the world in pharmaceutical production by volume. During2020-21, total pharma export US$ 24.4 Bn against the total pharma import of US$7.0Bn (Figure 21), thereby generating trade surplus of US$17.5 Bn. India is the largest supplier of generic medicines with a 20percent share in the global supply. Price competitiveness and good quality has enabled Indian medicines producers to be dominant players in the world market, thereby making the country the *"Pharmacy of the world"*. FDI in the pharmaceutical sector has seen a sudden spurt in 2020-21 vis a vis the previous year showing a 200percent increase. In 2021-22 (April-September) the FDI inflows continued to be buoyant at Rs. 4413crore, growing at the rate of 53 percent over the same period in 2020-21. The extraordinary growth of foreign investments in pharma sector is mainly on account of investments to meet COVID-19 related demands for therapeutics and vaccines.

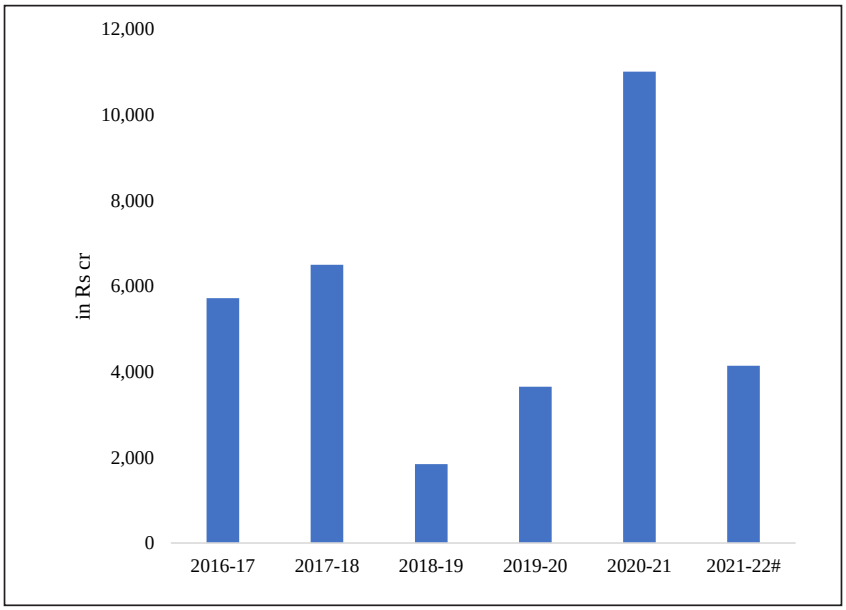
8.34 Although a prominent player in formulations, the country is significantly dependent on the import of bulk drugs that are used in the formulation of medicine. In certain cases, import dependence varies between 80-100 percent. This issue of import dependence for critical bulk drugs was examined by a High-Level Committee and a composite set of actions to incentivize bulk drug production have been initiated.

Figure 21: Trade of Pharmaceutical industry



Source: Survey calculations based on data from D/o Commerce. Data includes trade in Aayush and herbal products; bulk drugs, drug intermediates; drug formulations, biological; surgicals.

Figure 22: FDI Inflows in Pharma sector



Source: Survey calculations based on data from D/o Pharma and DPIIT. # April-September

8.35 The initiatives taken by the government to address the requirement of the pharmaceutical and medical devices industry are as follows:

- The Scheme for Promotion of Bulk Drug Parks that envisages creation of world class infrastructure facilities in order to make Indian bulk drug industry a global leader was approved by the Government of India on 20th March, 2020. Easy access to world class common infrastructure facilities to bulk drug units located in these parks have the potential of increasing the competitiveness of the domestic bulk drug industry.

- Production linked incentive (PLI) scheme for Bulk drugs has been approved for promotion of domestic manufacturing of 53 critical APIs in the country with a budget of INR 6,940 crore for the next eight years.
- Production linked incentive (PLI) scheme for Pharmaceuticals has been approved by the Government of India on 24th March, 2021 with a total financial outlay of Rs. 15,000 crore and three categories (biopharmaceuticals, API/KSM/drug intermediates, and drugs not covered under Category 1 and Category 2) of pharmaceutical goods will be incentivized under the scheme based on their incremental sales for 6 years. Among the three identified product categories under the scheme as noted above, this scheme excludes the 41 bulk drugs covered under the PLI for Bulk drugs.
- Production Linked Incentive (PLI) Scheme for Promoting Domestic Manufacturing of Medical Devices was approved on 20th March, 2020. The total financial outlay of the Scheme is Rs. 3,420 crore. The Scheme is applicable only to the greenfield projects and intends to attract large investments in the medical devices sector. The four target segments of medical devices are cancer care/ radiotherapy medical devices; radiology & imaging medical devices and nuclear imaging devices; anesthetics & cardio-respiratory medical devices; renal care medical devices and all implants including implantable electronic devices.

INFRASTUCTURE

8.36 Infrastructure is the back bone for any economy. The extent and quality of infrastructure determines the ability of the country to utilize its comparative advantage and enables cost competitiveness. Given the strong backward and forward linkages and the positive externalities that infrastructure generates, it can be a vehicle for social and economic transformation.

National Infrastructure Pipeline (NIP)

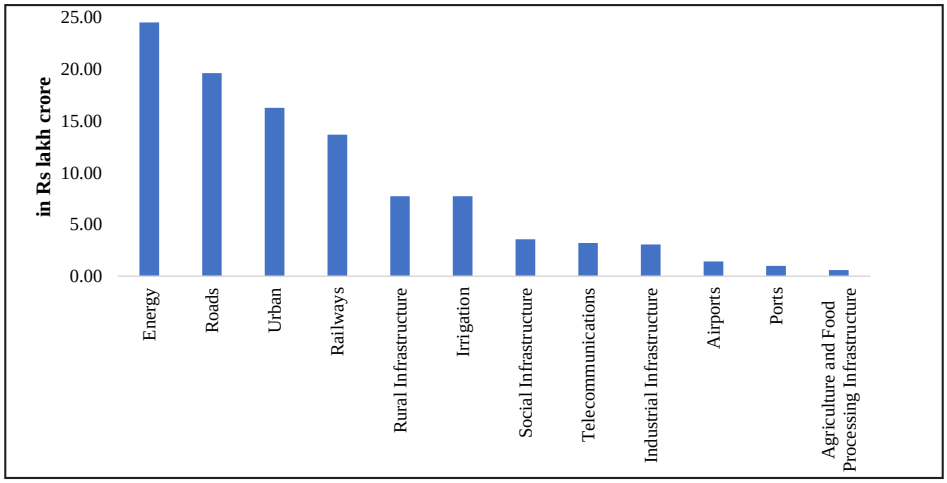
8.37 Public Private Partnership in infrastructure has been an important source of investment in the sector. As per the database of the World Bank on private participation in infrastructure, India is ranked second among developing countries both by the number of PPP Projects as well as the associated investments. Much of the Indian success in PPPs is attributed to development of robust institutional structure, financial support, and use of standardized documents, both process documents like Model Request for Qualification and Model Request for Proposal as well as substantive documents like the Model Concession Agreements across infrastructure sectors.

8.38 The Public Private Partnership Appraisal Committee (PPPAC) which is responsible for the appraisal of PPP projects has cleared 66 projects with a total project cost of Rs. 137218 crores from 2014-15 to 2020-21. The government launched the Viability Gap Funding (VGF) scheme for providing financial assistance to financially unviable but socially/ economically desirable PPP projects. Up to 20percent of the project cost is funded under this scheme as a grant. Based on the above, the total VGF amount disbursed between 2014-15 to 2020-21 by DEA is Rs. 2943 crores. Further, the Government of India has in November 2020 approved continuation of and revamping of the Scheme for Financial Support to Public Private Partnerships (PPPs) in Infrastructure Viability Gap Funding (VGF) Scheme till 2024-25. The revamped VFG scheme

is expected to attract more PPP projects and facilitate private investment in social sectors such as health, education, waste water, solid waste management, water supply etc.

8.39 In order to achieve the GDP of $5 trillion by 2024-25, India needs to spend about $1.4 trillion over these years on infrastructure. During FYs 2008-17, India invested about US$1.1 trillion on infrastructure. However, the challenge is to step up infrastructure investment substantially. Keeping this objective in view, National Infrastructure Pipeline (NIP) was launched with projected infrastructure investment of around Rs. 111 lakh crore (US$ 1.5 trillions) during FY 2020-2025 to provide world-class infrastructure across the country, and improve the quality of life for all citizens. It also envisages to improve project preparation and attract investment, both domestic and foreign in infrastructure. NIP was launched with 6,835 projects, which has expanded to over 9,000 projects covering 34 infrastructure sub-sectors. During the fiscals 2020 to 2025, sectors such as energy (24percent), roads (19percent), urban (16percent), and railways (13percent) amount to around 70percent of the projected capital expenditure in infrastructure in India. Sector wise break-up of the pipeline for the period 2019-20 to 2024-25is given in figure 23. NIP has involved all the stakeholders for a coordinated approach to infrastructure creation in India to boost short-term as well as the potential GDP growth.

Figure 23: Industry wise breakup of pipeline



Source: Survey calculations based on data from the Report of the Task Force on National Infrastructure Pipeline for 2019-2025

National Monetisation Pipeline (NMP)

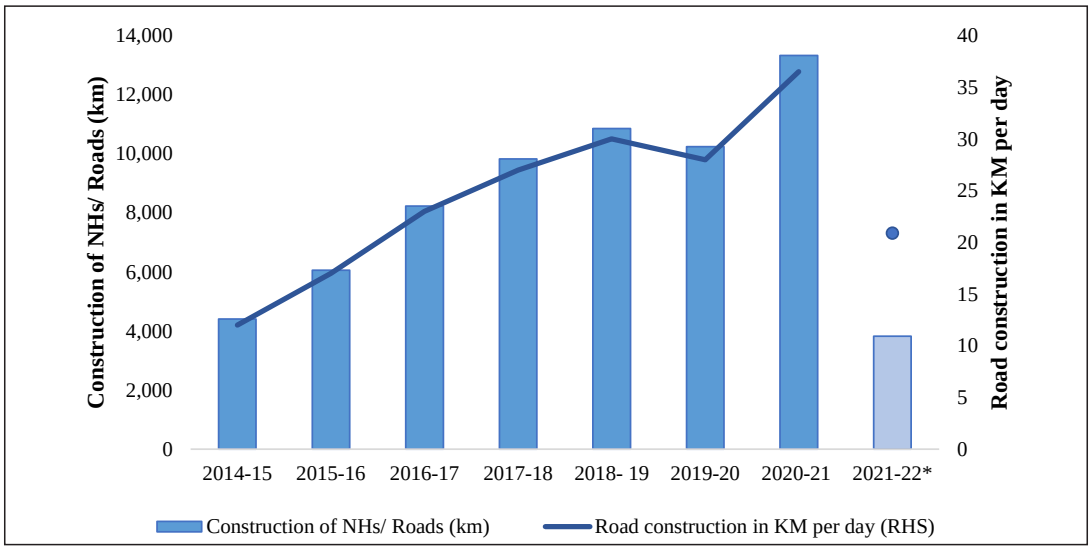
8.40 NITI Aayog has developed the 'National Monetisation Pipeline (NMP Volumes 1 & 2)' in consultation with infrastructure line ministries. Asset monetisation, entails a limited period license/ lease of an asset, owned by the government or a public authority, to a private sector entity for an upfront or periodic consideration. The private sector entity is expected to operate and maintain the asset based on the terms of the contract/concession, generating returns through higher operating efficiencies and enhanced user experience. Funds, so received by the public authority, are reinvested in new infrastructure, or deployed for other public purposes. Such contracts include provision for transfer of asset back to the authority at the end of the period.

8.41 A robust asset pipeline has been prepared to provide a comprehensive view to investors and developers of the investment avenues in infrastructure. The pipeline includes selection of de-risked and brownfield assets with stable revenue generation profile (or long rights) which will make for an attractive investment option. Total indicative value of NMP for core assets of the Central Government has been estimated at Rs 6.0 lakh crore over 4-year period (5.4percent of total infrastructure investment envisaged under NIP).

Road Transport

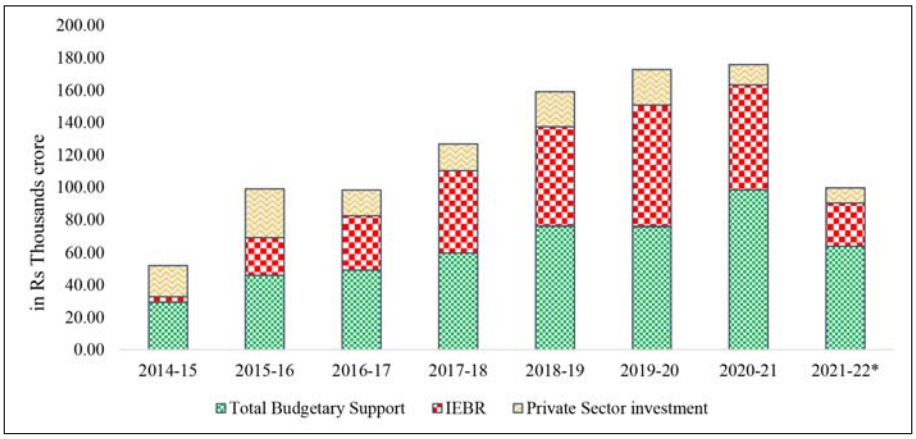
8.42 Road transport is one of the most cost effective and convenient modes of transportation in India both for freight and passengers as it has high penetration level with door-to-door delivery. Importance of road infrastructure is widely recognized as a potent means of socio-economic integration and is vital for the economic development of the country. The road network of the country consists of National Highways (NH), State-Highways (SH), District Roads, Rural Roads, Urban Roads and Project Roads of over 63.71(Provisional) lakh km of roads as on 31 March 2019, which is the second-largest in the world, after the United States with 66.45lakh kms of roads. There has been a consistent increase in the construction of National Highways/roads since 2013-14 with 13,327 kms of roads constructed in 2020-21 as compared to 10,237 kms in 2019-20, indicating an increase of 30.2 per cent over the previous year. In the2021-22 (till September), 3,824 kms of road network were constructed. The extent of road construction per day increased substantially in 2020-21 to 36.5 kms per day from 28 kms per day in 2019-20, a rise by 30.4 percent as compared to the previous year (Figure 24). The significant upturn in road construction in 2020-21 is due to the increase in public expenditure by 29.5 percent as compared to the previous year- a reflection of the impetus given by the Government of India to a critical sector that generates employment and supports infrastructure during a pandemic year. In addition to action taken to increase the network of national highways, the govt has taken measures to address village level road network through the Gram Sadak Yojana discussed in chapter 9.A comparison of National Highway network in the country in 2011 and 2021 may be seen in chapter 10.

Figure 24: Road Construction



Source: Survey calculations based on data from M/o RTH. For year 2021-22 -As on 30.9.2021

Figure 25: Investments in Roads sector

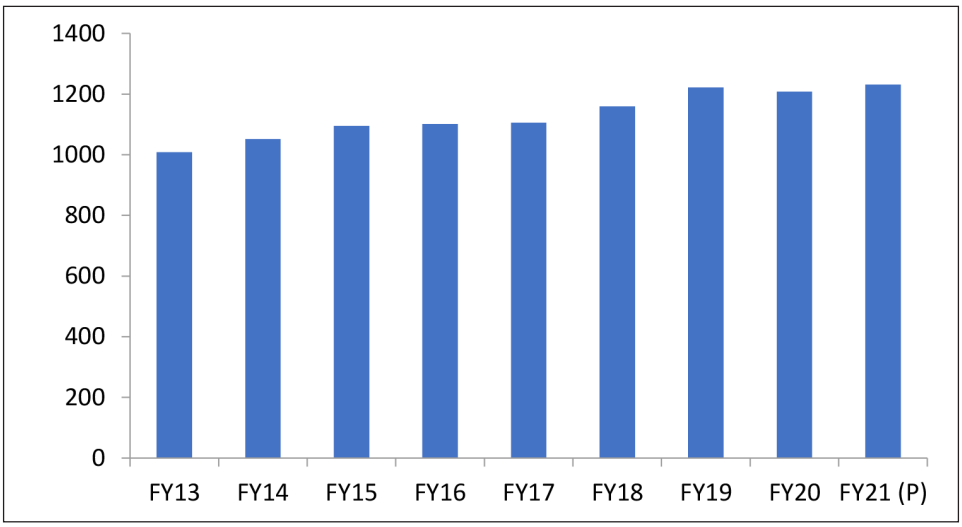


Source: Survey calculations based on data from M/o RTH. For year 2021-22 -As on 30.9.2021

Railways

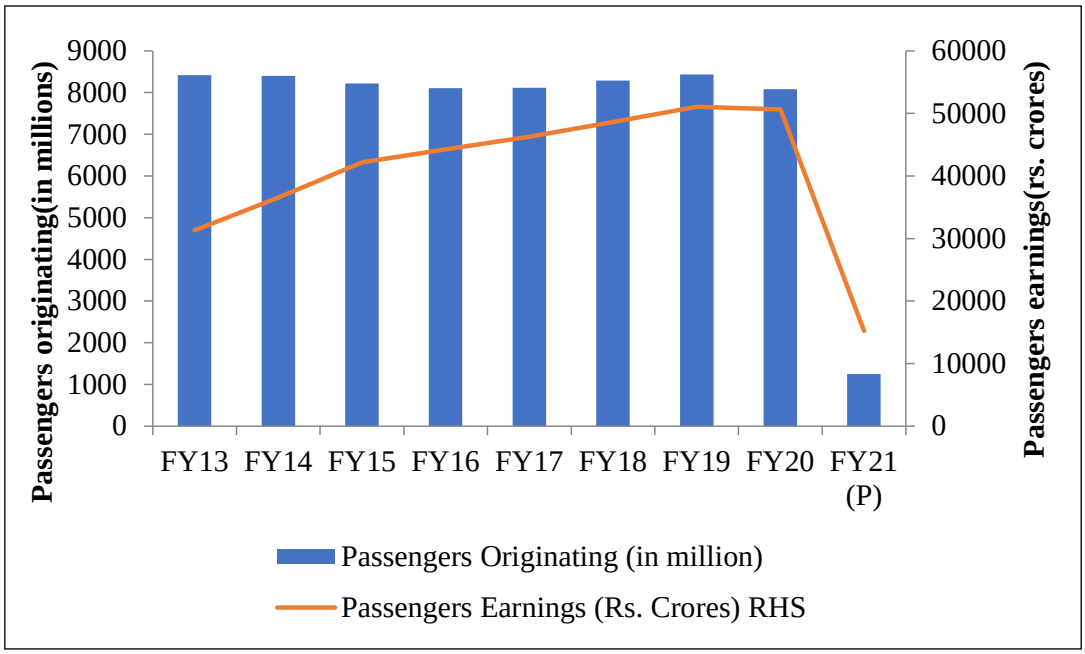
8.43 Despite facing the unprecedented COVID related challenges Indian railways (IR) has not only been able to move millions of people but also able to keep national supply chain running. Being the third largest network in the world under single management and with over 68,102 route kms IR strives to provide safe, efficient, competitive and world class transport system. An average of 1835 track km per year of new track length has been added through new-line and multi-tracking projects during 2014-2021 as compared to the average of 720 track kms per day during 2009-14. IR is also adopting indigenous new technology such as KAVACH, Vande Bharat trains and redevelopment of stations to have safe and better journey experience. During FY21, IR carried 1.23 billion tonnes of freight and 1.25 billion passengers. In addition, despite COVID -19 pandemic revenue earning freight loading (excluding loading by Konkan Railway Corporation Ltd. (KRCL) was 1230.9 million tonnes in 2020-21 as compared to 1208.4 million tonnes during 2019-20(Figure 26). Passengers originating were 1250 million in 2020-21 as compared to 8086 million in 2019-20(Figure 27)

Figure 26: Revenue earning freight loading originating traffic (million tonnes)



Source: Ministry of Railways. Excludes loading by Konkan Railway Corporation Ltd. (KRCL). P-provisional

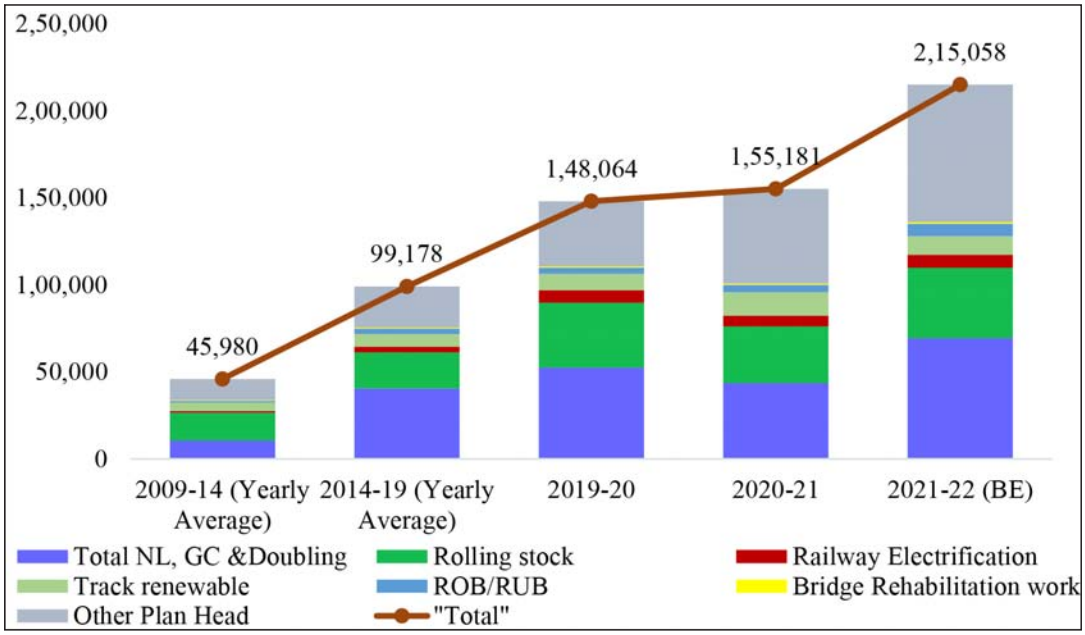
Figure 27: Passengers originating (in millions) and passengers earnings (Rs crores)



Source: Ministry of Railways. Includes metro railway Kolkata

8.44 Safety of the passengers and safe upkeep of railways assets is the topmost priority of IR. With a continuing focus on safety of passengers the number of consequential train accidents has come down from 59 in 2018-19 to 55 in 2019-20 (pre-Covid) and further to 22 in the last in 2020-21. In addition, in order to strengthen the agriculture sector, as on 31st December 2021, IR has operated 1,841 Kisan Rail services, transporting approximately 6.0 lakh tonnes of perishables including fruits and vegetables.

Figure 28: Major Capital Expenditure in IR

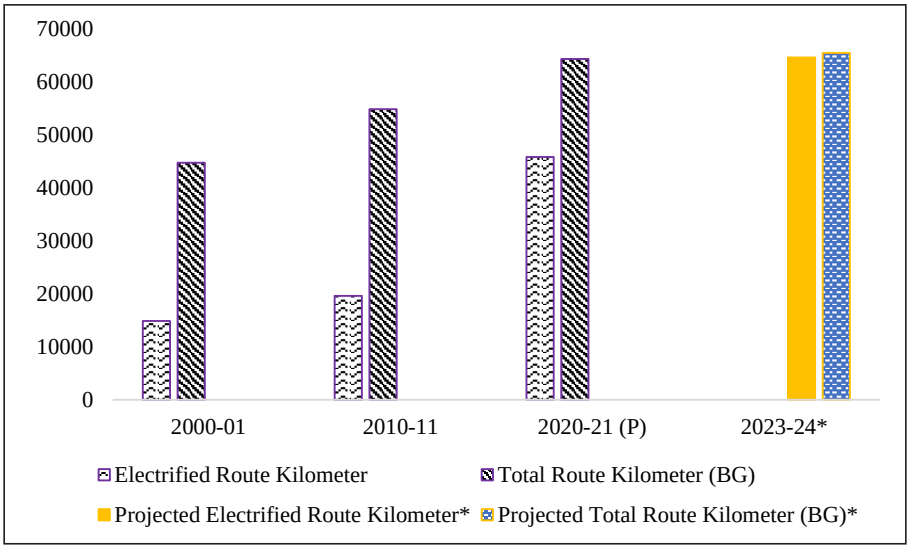


Source: Ministry of railways

8.45 CAPEX has been increased substantially for IR from an average annual CAPEX during 2009-14 of Rs. 45,980 crores to Rs. 2,15,058 crores during 2021-22 (BE) Figure (28).

IR is targeting for 100% electrification of its network by December 2023(figure 29)

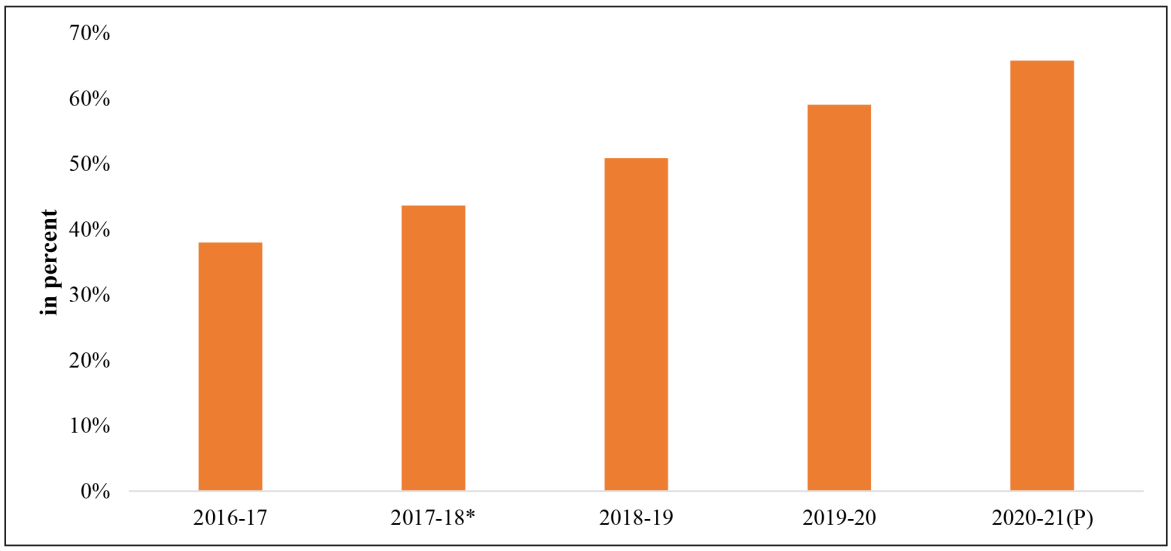
Figure 29: Electrified Route km as a percent of total route km



Source: Ministry of Railways. * Projections

8.46 In order to provide better amenities IR has embarked on providing Wi-Fi internet services at all stations (excluding halt stations). As on 5th December 2021, total 6,087 Railway Stations have been equipped with Wi-Fi facility (figure 30).

Figure 30: No. of Stations equipped with Wi-Fi



Source: Ministry of Railways

8.47 In addition to the above, projects connecting difficult terrain such as Rishikesh - Karnaprayag line as also the rail network to connect all capitals of north east states are ongoing. Further, a number of infrastructure development initiatives are envisaged in the National Rail Plan (NRP) being prepared by Indian Railways (Box 5)

Box 5: National Railway Plan

The National Rail Plan lays down the road map for capacity expansion of the railway network by 2030 to cater to growth up to 2050. It envisages the creation of a future ready railway system that is able to not only meet the passenger demand but also increase the modal share of railways in freight to 40-45% from the present level of 26-27%. The target of 40-45% modal share for railways is necessary from the perspective of sustainability and also from the national commitments made globally for reducing emission levels.(see chapter 6 on sustainable development and climate change).

Unlike growth, which is linear, capacity grows in surges (sawtooth curve) depending on project completion timelines.As per the National Rail Plan, the freight ecosystem is expected to grow from the present level of 4700 MT to 8200 by 2030. At present the railway capacity is barely able to carry 1220 MT which is around 26-27% of the modal share. The Plan provides a pipeline of projects,which on completion will increase railway capacity to capture 45% of freight traffic. Since the railways is already having a large number of sanctioned projects that need to be completed before taking up new projects, it has been planned to increase railway capacity in two surges. The first surge is to be provided by the Vision 2024 plan to prioritize and complete sanctioned projects so that railway capacity does not fall far behind the targeted modal share such that by the time capacity is finally created, the traffic would have shifted to another mode. To prevent further bleeding away of modal share, railway capacity enhancing projects have been categorized as Super Critical and Critical. 58 projects have been identified as Super Critical and are targeted for completion by December2022. 68 projects have been identified as Critical and have been targeted for completion by March 2024. These projects are focussed at increasing capacity on routes that serve major mineral, industrial hubs along with ports and major consumption centres.

In addition to these critical projects, the Ministry of Railway has also targeted 100% electrification of its network by December2023 upgrading Delhi-Mumbai & Delhi-Kolkata corridors to 160 kmph and also elimination of level crossings on the Golden Quadrilateral/Golden Diagonal routes. On completion of Vision 2024 projects, in the second half of the decade, the aim is to commission new Dedicated Freight Corridors and also High Speed Passenger Corridors, besides multitracking and signaling upgradation of congested routes

The next 10 years will see a very high level of CAPEX in the railway sector as capacity growth has to be accelerated such that by 2030 it is ahead of demand. Up to 2014,CAPEX on railway was barely Rs45,980 crore per annum and consequently the railway was charecterized by high levels of inefficiency and highly congested routes unable to meet the growing demand. Post 2014, a conscious effort was made to improve the railway sector by substantially increasing the CAPEX. The CAPEX outlay for 2021-22 is Rs 2,15,000 crs which is more than five times the 2014 level. As more projects are taken on hand and several sources of capital funding are developed, the CAPEX will increase further in coming years and the railway system will actually emerge as an engine of national growth.

Civil Aviation

8.48 India has emerged as one of the fastest growing aviation markets in the world. The domestic traffic in India has more than doubled from around 61 million in 2013-14 to around 137 million in 2019-20, registering a growth of over 14 percent per annum.

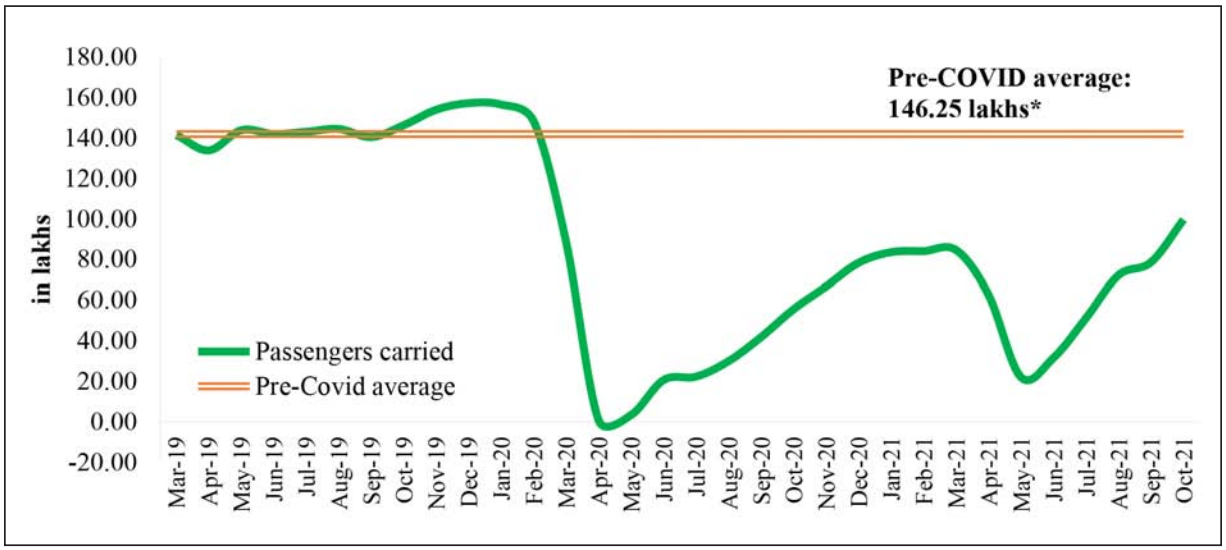
8.49 Government of India took various initiatives to boost the aviation sector which included calibrated opening of the domestic sector as the first wave of the pandemic ebbed, introduction of air transport bubbles or air travel arrangements with specific countries, disinvestment of Air India (Box6), privatization and modernization/expansion of airports, boost to the regional connectivity scheme - UDAN, incentivization of maintenance, repair and overhaul (MROs) operations etc.

8.50 UDAN is a regional airport development program of the Government of India and part of the Regional Connectivity Scheme (RCS) of upgrading underserviced air routes. Till launching of UDAN in 2016, India had 74 airports having scheduled operations. But, within 4 years under UDAN, four rounds of bidding under RCS-UDAN have taken place and 153 RCS airports including 12 water aerodromes & 36 Helipads have been identified for operation of RCS flights. During the last four years after commencement of the scheme, 948 valid awarded routes have been allotted to various airlines and out of which 389 RCS routes connecting 62 unserved and underserved airports (including 6 heliports & 02 water aerodromes) have been operationalized so far.

8.51 With the help of these supportive measures, India's aviation sector is on the path of gradual recovery from the turbulence caused by the COVID-19 pandemic. In addition, Unmanned Aircraft Systems (UAS), also known as drones, offer tremendous benefits to almost all sectors of the economy and can become an important propeller for growth due to their reach, versatility, and ease of use, especially in India’s remote and inaccessible areas. Thus, government has liberalized drone rules 2021 on August 2021 and released PLI scheme for drones on 15 September 2021. The policy reforms will therefore catalyze super-normal growth in the upcoming drone sector. A resurgence of the sector is foreseen as a result of swift measures adopted by the government and industry.

8.52 With the accelerated pace of vaccine roll-out and easing of travel restrictions globally, Indian aviation sector has started to rebound. Despite the travel restrictions, the total passengers carried in October, 2021 reached 99.58 lakhs which was near 68 percent of the pre-Covid level (146.25 lakh) (figure31).

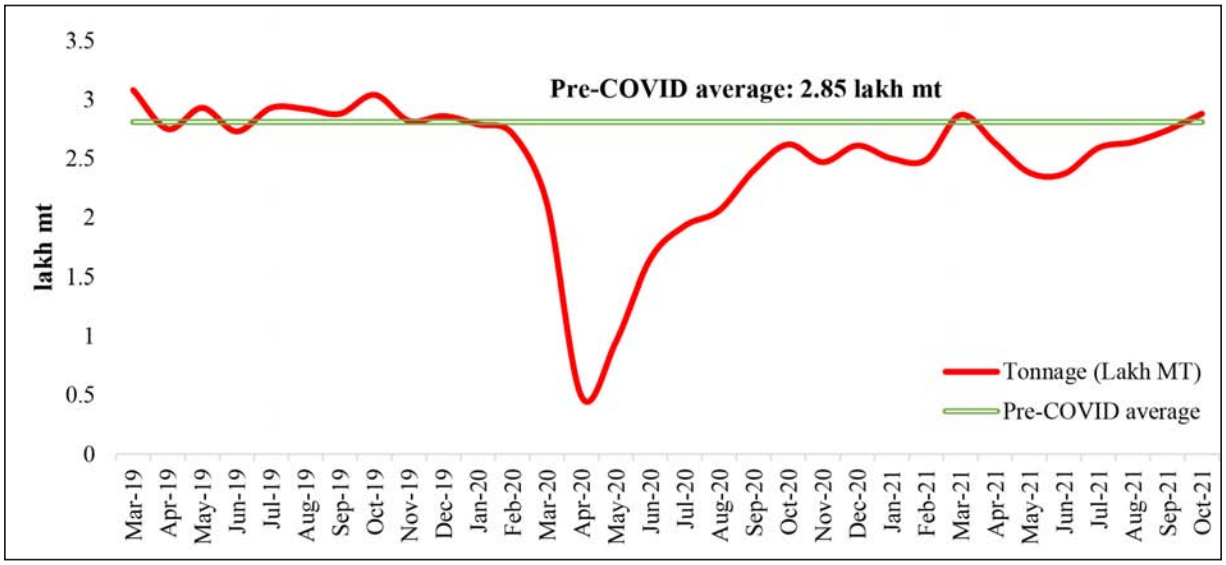
Figure 31: Month-wise Total Passengers Carried (in Lakh)



Source: Ministry of Civil Aviation. * Pre-COVID average is calculated for 11 months of 2019-20 starting from April, 2019 to February, 2020.

8.53 Besides growing month-on-month, air cargo operations are already performing strongly with the resurrection of the economy, supported by a robust rebound in business confidence, and boosted by resilient domestic demand, including through e-commerce. The total air cargo tonnage carried in October, 2021 reached 2.88 lakh MT which surpassed the pre Covid level (2.81lakh MT) (figure 32).

Figure 32: Month-wise Total air cargo tonnage (in Lakh MT)



Source: Ministry of Civil Aviation. * Pre-COVID average is calculated for 11 months of 2019-20 starting from April, 2019 to February, 2020

Box 6: Privatization in the Aviation sector

Disinvestment of Air India: The process for disinvestment of Air India and its subsidiaries commenced in June 2017 with the 'in-principle' approval of Cabinet Committee on Economic Affairs (CCEA). CCEA also approved creation of an Air India Specific Alternative Mechanism (AISAM) for the disinvestment process. The AISAM decided the strategic disinvestment of 100percent stake of Government of India in Air India along with 100percent stake in Air India Express Ltd and 50percent stake in Air India SATS (joint venture between Air India (AI) and Singapore Airport Terminal Services (SATS).

Subsequently, M/s Talace Pvt Ltd, a wholly owned subsidiary of M/s Tata Sons Pvt. Ltd which was the highest bidder was awarded 100percent equity shareholding in Air India along with equity shareholding of Air India in Air India Express Ltd. (AIXL) and AISATS. The winning bid was for Rs 18,000 crore as Enterprise Value (EV) consideration for AI (100percent shares of AI along with AI's shareholding in AIXL and AISATS). Share - Purchase Agreement has been executed on 25th October, 2021 and the transaction is likely to be completed by December 2021 - January 2022.

Privatization of Airports: In order to improve efficiency and performance, service quality,encourage greater investment and to reduce government influence, Airports Authority of India (AAI) has awarded six airports namely, Ahmedabad, Jaipur, Lucknow, Guwahati, Thiruvananthapuram and Mangaluru for Operations, Management and Development to the highest bidder i.e., M/s Adani Enterprises Limited (AEL) under Public Private Partnership (PPP) mode for a lease period of 50 years. Besides, AAI had leased out Delhi and Mumbai Airports in 2006 to M/s Delhi International Airport Limited and M/s Mumbai International Airport Limited respectively for Operations, Management and Development under PPP mode for a period of 30 years. As per National Monetization Pipeline (NMP), 25 AAI airports have been earmarked for asset monetization over the years 2022 to 2025 namely Bhubaneshwar, Varanasi, Amritsar, Trichy, Indore, Raipur, Calicut, Coimbatore, Nagpur, Patna, Madurai, Surat, Ranchi, Jodhpur, Chennai, Vijayawada, Vadodara, Bhopal, Tirupati, Hubli, Imphal, Agartala, Udaipur, Dehradun and Rajahmundry.

The criteria adopted for Monetization of airport assets under NMP is as following:
(i) Airports having annual traffic above the threshold of 0.4 million passengers (in 2019 and2020);
(ii) Airports with a sizeable ongoing/proposed capex plan as per the National Infrastructure Pipeline (NIP).

Ports

8.54 Port performance in an economy is crucial for trade competitiveness of that economy. Expansion of port capacity has been accorded the highest priority by the Government through implementation of well-conceived infrastructure development projects. The capacity of 13major ports which was 871.52 million tonnes per annum (MTPA) at the end of March 2014, has increased by 79 percent to 1,560.61 MTPA by the end of March 2021. Traffic handled at these ports was to the tune of 672.68 MT during 2020-21, which was 4.6 percent lower than that in the previous year on account of the worldwide disruptions in international trade due to the pandemic. The average turnround time at these major ports has reduced from 62.11 hours in 2019-20 to 55.99 hours in 2020-21 (Figure 33) due to the various measures taken by government to improve the ease of doing business.

8.55 As on 31stDecember 2021, India had a fleet strength of 1463 vessels with Gross tonnage (GT) of 13,011 thousand compared to 1429 vessels and 12,746 thousand of GT at the end of 2019. However, Indian fleet is just 1.2 percent of world's fleet in terms of capacity and carries only 7.8 percent (for 2018-19) of India's EXIM trade. With the cost of using services of foreign shipping company is less than that of a local shipping company, most freight moves in foreign ships leading to aa huge foreign exchange outflows. In order to address the cost disadvantage suffered by Indian flag ships, in July 2021 the Union cabinet has approved a scheme providing subsidy support of Rs.1,624 crore to Indian shipping companies in global tenders floated by Ministries and CPSEs over five years to promote flagging of merchant ships in India.

8.56 Many initiatives have been taken by the government to improve port governance, augment capacity utilization, enhance port efficiency and connectivity. The measures include the following among others:

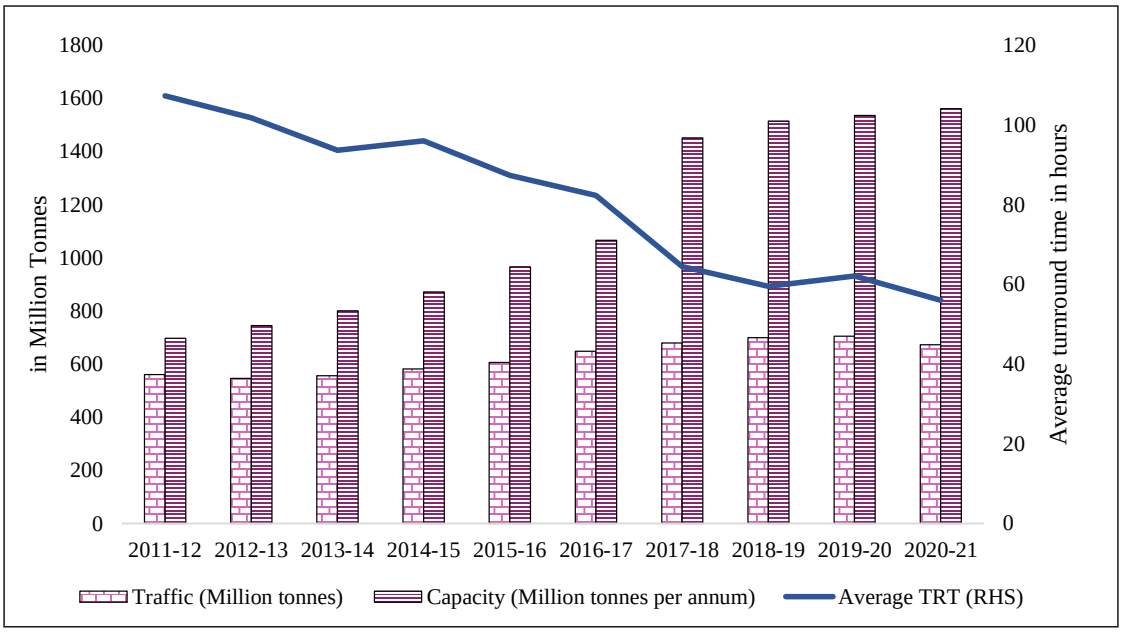
- Sagarmala which is a National Programme aimed at accelerating economic development in the country by harnessing the potential of India's 7,500 km long coastline and 14,500 km of potentially navigable waterways. The Sagarmala projects include port modernization & new port development, connectivity enhancement, port-led industrialization, coastal community development, coastal shipping and Inland water transport. Currently, there are 802 projects worth investment of Rs. 5.54 lakh crore for implementation under the Sagarmala Programme by 2035. Out of which, 181 projects worth Rs. 94,712 crore have been completed and 223 projects worth Rs. 2.11 lakh crore are under implementation. Further, 398 projects worth Rs. 2.48 Lakh crore are under various stages of development.

- The Major Port Authorities Act 2021 was notified on 18.2.2021. This act provides for inter alia regulation, operation and planning of major ports in India and vests the administration, control and management of such ports upon the Boards of Major Port Authorities.

- A new Captive Policy for Port Dependent Industries has been prepared to address the challenges of renewal of concession period, scope of expansion, and dynamic business environment.

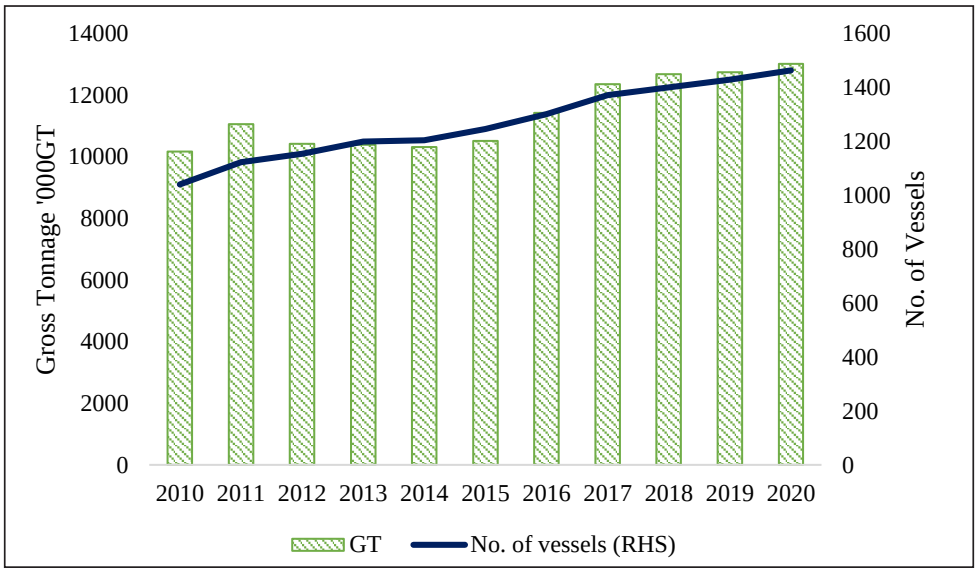
8.57 With the objective of propelling India to the forefront of the Global Maritime Sector, the Maritime India Vision 2030 (MIV 2030), a blueprint to ensure coordinated and accelerated growth of India's maritime sector in the next decade was released on March 2021. The objective is to develop world-class mega ports, transshipment hubs and ensure infrastructure modernization. MIV 2030 estimates that development of Indian ports will drive cost savings of Rs. 6,000-7,000 crore per annum for EXIM clients. Further, the augmented operations are estimated to create an additional ~700,000-1,000,000 jobs in the sector. MIV 2030 estimates the investment requirement for capacity augmentation and development of world class infrastructure at Indian Ports to be to the tune of Rs. 1, 00,000 – 1, 25,000 crore.

Figure 33: Performance of Major ports



Source: Survey calculations based on data from Ministry of Ports, Shipping and Waterways. Average TRT during 2020-21 is based on Pilot boarding till de-boarding. Port Capacity was re-rated based on Berthing Policy as per international norms. Major Ports re-rated capacity during 2016-17 was 1359 MTPA.

Figure 34: Growth of Indian Shipping



Source: Survey calculations based on data from Ministry of Ports, Shipping and Waterways.

Inland waterways

8.58 Regulatory amendment through the Inland Vessels Act, 2021, replaced the over 100 years old Inland Vessels Act, 1917 (1 of 1917) and ushered in a new era in the inland water transport sector. The objective of the Act is to promote economical, safe transportation and trade through inland waters. It will ensure transparency and accountability in the administration of inland water transportation and promote the ease of doing business.

8.59 Augmentation in navigation capacity of National Waterway-1 (NW-1) is being implemented since 2018 through the Jal Marg Vikas Project from Varanasi to Haldia stretch of Ganga-Bhagirathi-Hooghly River System to enable large barge movements. Construction of multi-modal terminals at Varanasi and Sahib Ganj have been completed and that of the multimodal terminal at Haldia and the Navigational Lock at Farakka have achieved substantial progress. The other projects such as comprehensive development of NW-2 and NW-16 &Indo-Bangladesh Protocol (IBP) route are proposed to be undertaken for a period of 5 years at a cost of Rs. 461 crores and Rs.145.29 crores respectively, from 2020-21 to 2024-25.

8.60 There has been a continued increase in traffic and augmentation of capacity of major ports (figure 33). In the backdrop of COVID-19 the traffic at major ports has suffered, declining by 4.57 percent between 2019-20 and2020-21, but capacity of major ports has been rising, though at slower pace in recent years.

Box 7: Connecting PILLARS OF INDIA PM-GATI SHAKTI

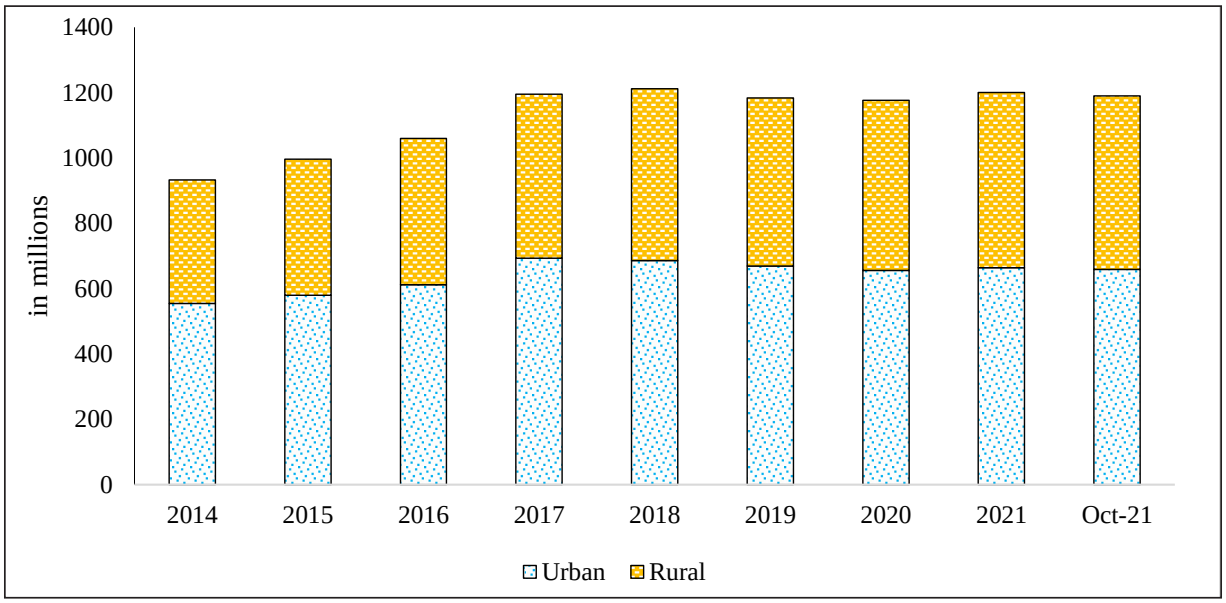
Another milestone achieved which has heralded a new chapter in governance is the PM Gati Shakti an integrated plan ensuring multi-modal and seamless connectivity for people, goods and services. It covers16 ministries and infrastructure like Bharatmala, Sagarmala, inland waterways, dry/land ports, UDAN etc. It is also expected to include social infrastructure like hospitals and universities. With continuous improvement in digital infrastructure along with development of economic zones like textile clusters, pharmaceutical clusters, defence corridors, electronic parks, industrial corridors, fishing clusters, agri zones, GATI-SHAKTI will improve connectivity and make Indian businesses more competitive. It will also leverage technology extensively including spatial planning tools with ISRO imagery developed by Bhaskaracharya National Institute for Space Applications and Geoinformatics. This is a constant endeavor to build next generation infrastructure to improve ease of living as well as ease of doing business.

Telecom

8.61 India is the world's second-largest telecommunications market. The telecommunication sector is one of the most powerful sectors impacting social and economic development of a country. A strong and a responsive regulatory framework has kept the service access at reasonable prices. The Government has taken further measures to ensure fair competition among service providers with the view to benefit the consumers (BOX 8).

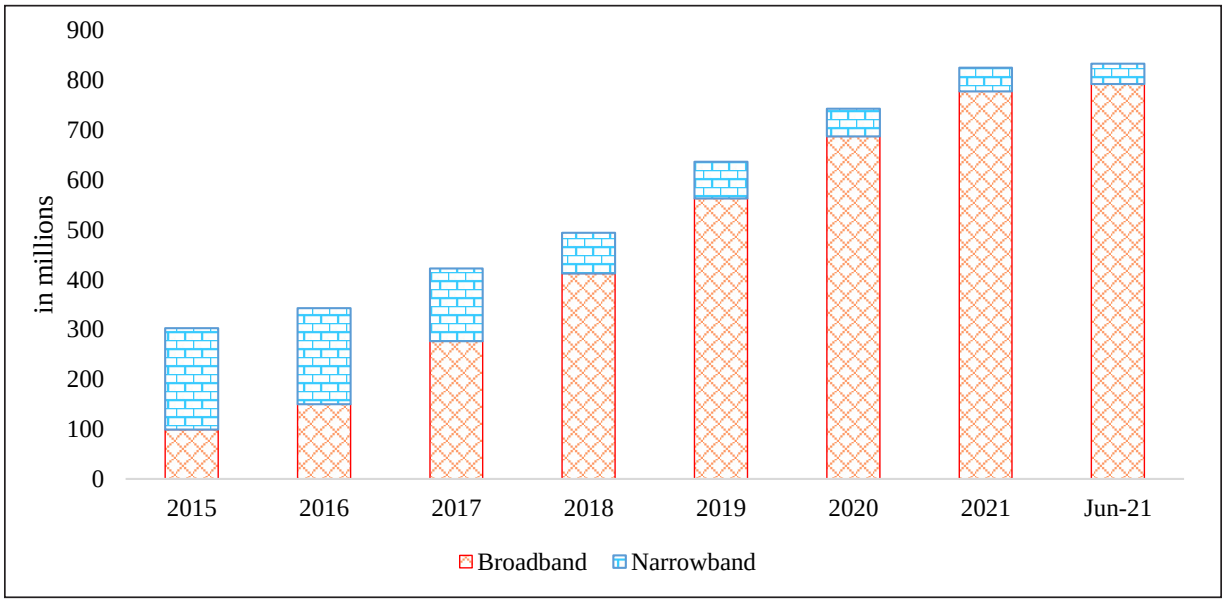
8.62 The relevance of telecom sector has increased immensely. This can be gauged from the fact that the total telephone subscriber base in India has increased from 933.02 million in March 2014 to 1200.88 million in March 2021.In March 2021, 45 percent of subscribers were based in rural India and 55 percent in urban areas (figure 35). Internet penetration in the country is increasing steadily with internet subscribers increasing from 302.33 million in march 2015 to 833.71 million in June 2021. While 67.2 percent of internet subscribers had narrow-band connections and 32.8 percent had broadband connections in 2015, the composition had reversed by June 2021 with only 4 percent of subscribers having narrowband and 96 percent with broadband connections (Figure 36).

Figure 35: Number and Composition of Telephone Subscribers (in millions)



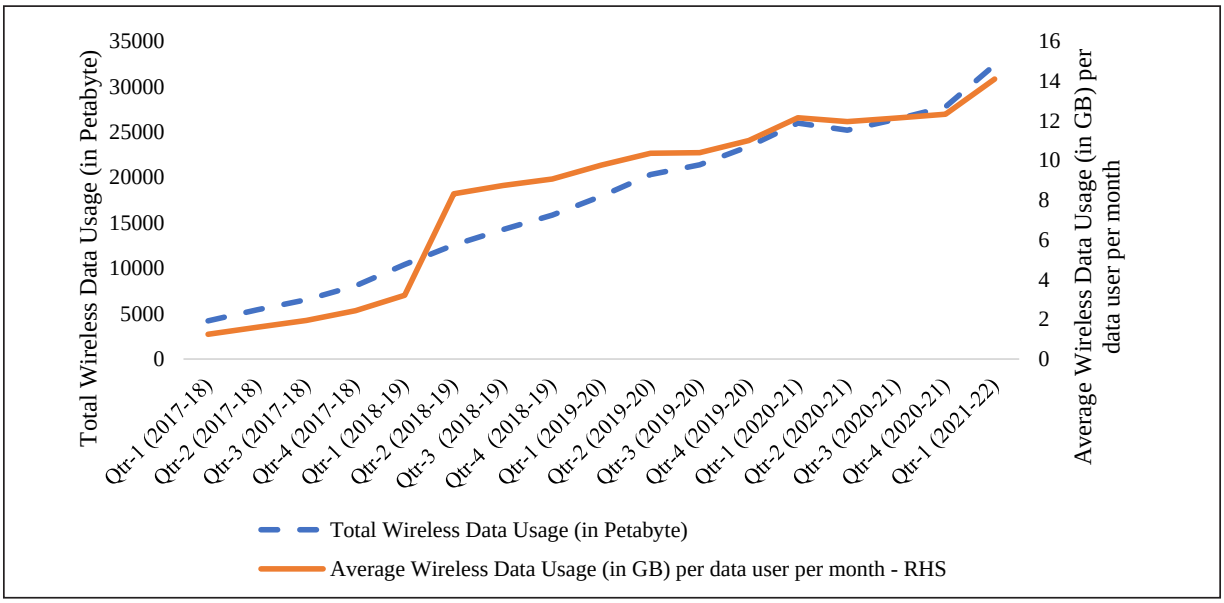
Source: DoT. As in March month of each year

Figure 36: Number and Composition of Internet Subscribers



Source: TRAI As in March month of each year

Figure 37: Total and Average Wireless Data usage

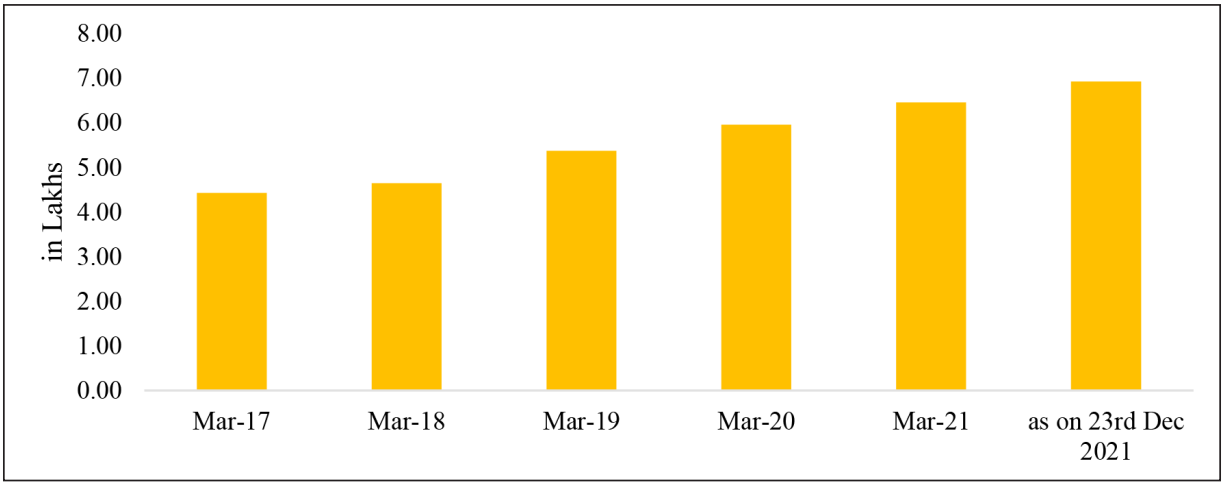


Source: TRAI

8.63 Over the last few years, telecom sector in India has become data driven and reducing costs of data due to the fierce competition in the sector. This has boosted data usage even further. Total volume of wireless data usage increased by more than 7 folds from 4206 petabyte in Q1:FY18 to 32397 petabytes in Q1:FY22. Average wireless data usage in gigabyte (GB) per data user per month has also increased tremendously from just 1.24 GB per month in Q1:FY18 to a whooping 14.1 GB per month in Q1:FY22 (Figure 37).

8.64 The number of mobile towers has also increased substantially (Figure 38) reaching 6.93 lakhs towers in December 2021, reflecting that the telecom operators have well realized the potential in the sector and seized the opportunity to build up an infrastructure that will be fundamental in boosting the Government's Digital India campaign.

Figure 38: Number of mobile towers (lakhs)



Source: DoT. As in March month of each year.

8.65 Under the flagship BharatNet project, as on 27.09.2021, 5.46 lakh km Optical Fiber Cable has been laid, a total of 1.73 lakh Gram Panchayats (GP) have been connected by Optical Fiber Cable (OFC) and 1.59 lakh Gram Panchayats are service ready on OFC. In addition, 4173 GPs have been connected over satellite media. Wi-Fi hotspots have been installed at 1.04lakh Gram Panchayats of which services are being provided at 0.64 lakh Gram Panchayats, catering to more than 16.17 lakh subscribers with a data usage to the tune of 5670.42 TB per month. The scope of BharatNet has now been extended to cover all inhabited villages beyond Gram Panchayats. On 30.06.2021, Government accorded approval for a revised strategy for implementation of BharatNet through Public-Private Partnership (PPP) model in 16 States of the country covering about 3.61 lakh villages (including 1.37 lakh GPs). Other projects include improving connectivity in 354 villages in the border areas of Jammu & Kashmir, Ladakh, Himachal Pradesh, Uttar Pradesh, Bihar, Rajasthan, Gujarat and Uttarakhand. As on 27.9.2021, around 161 villages out of 354 villages have been covered with mobile service. A boost to the telecom infrastructure is also being given under the aspirational district scheme.

8.66 The Government of India is implementing a Comprehensive Telecom Development Plan (CTDP) for the North-Eastern Region and Comprehensive Telecom Development Plan for Islands to provide mobile connectivity in the uncovered villages and along National Highways in the North-east. As on 30.08.2021, towers at 1,358 sites have been installed and are providing services. The undersea 2,313-km optic fiber-based telecom connectivity between Chennai and Andaman &Nicobar Islands was inaugurated in August 2020. Government has approved the proposal for provision of submarine Optical Fiber Cable Connectivity by laying approximately 1891km of cable between Kochi and Lakshadweep Islands. With the implementation of this project, the high-speed internet/ broadband connectivity will be available in Lakshadweep Islands.

8.67 In addition to the expansion in the telecom infrastructure, a number of measures have been taken to bring about structural and procedural reforms (see Box 8 for details). In the backdrop of the outstanding performance of the telecom sector in meeting COVID-19 challenges and with huge surge in data consumption due to online education, work from home, interpersonal connect through social media, virtual meetings etc., the reform measures will further boost the proliferation and penetration of broadband and telecom connectivity. The reforms are also expected to boost 4G proliferation, infuse liquidity and create an enabling environment for investment in 5G networks.

Box 8: Reforms in the Telecom Sector

Structural Reforms

1. Rationalization of Adjusted Gross Revenue: Non-telecom revenue will be excluded on prospective basis from the definition of AGR
2. Bank Guarantees (BGs) against License Fee (LF) have been rationalized. One BGs in different Licensed Service Areas (LSAs) regions in the country has been allowed.
3. Interest rates rationalized/ Penalties removed: From 1st October, 2021, delayed payments of License Fee (LF)/Spectrum Usage Charge (SUC) will attract interest rate of SBI's MCLR plus

2percent instead of MCLR plus 4percent; interest compounded annually instead of monthly; penalty and interest on penalty removed.

4. For Auctions held henceforth, no BGs will be required to secure instalment payments.
5. Spectrum Tenure: In future auctions, tenure of spectrum increased from 20 to 30 years.
6. Surrender of spectrum will be permitted after 10 years for spectrum acquired in the future auctions.
7. No Spectrum Usage Charge (SUC) for spectrum acquired in future spectrum auctions.
8. Spectrum sharing encouraged- additional SUC of 0.5percent for spectrum sharing removed.
9. To encourage investment, 100 percent Foreign Direct Investment (FDI) under automatic route has been permitted in Telecom Sector with all safeguards applying.

Procedural Reforms

10. Auction calendar fixed - Spectrum auctions to be normally held in the last quarter of every financial year.
11. Ease of doing business promoted - cumbersome requirement of licenses under Customs Notification for wireless equipment has been removed. This is replaced with self-declaration.
12. Know Your Customers (KYC) reforms: Self-KYC (App based) permitted. E-KYC rate revised to only one rupee. Shifting from prepaid to post-paid and vice-versa does not require fresh KYC.
13. Customer Acquisition Forms (CAF) in physical form will be replaced by digital storage of data. This is a cost saving measure as it would allow the Telecom Service Providers (TSPs) to release several warehouses that was being required to store 300-400 crore paper CAFs. Further, with this measure, warehouse audit of CAF would also not be required.
14. Standing Advisory Committee on Radio Frequency Allocation (SACFA) clearance for telecom towers eased. Department of Telecommunication will accept data on a portal, based on self-declaration basis which is to be linked to portals of other Agencies (such as Civil Aviation).

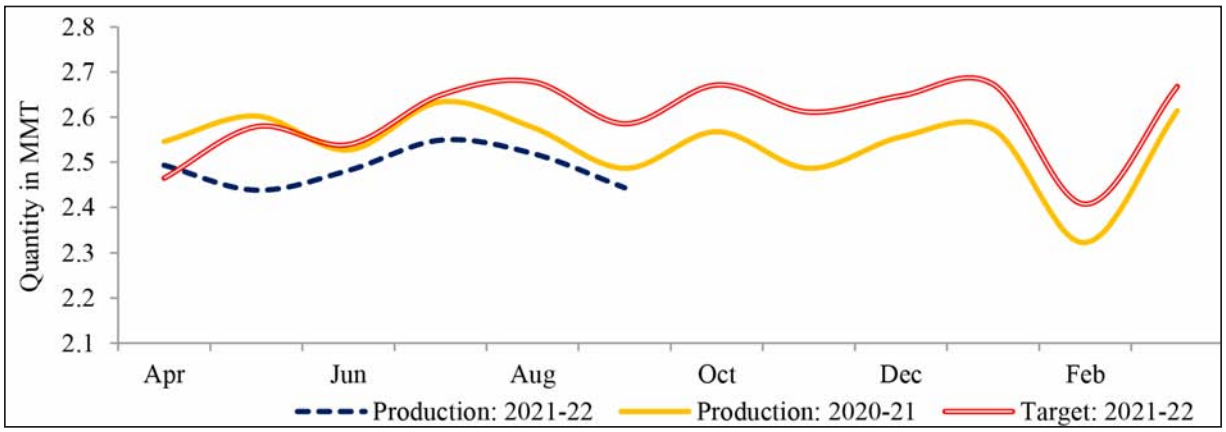
Addressing Liquidity requirements of TSPs: The Government approved the following for all the TSPs:

15. Moratorium/Deferment of up to four years in annual payments of dues arising out of the AGR judgement, while protecting the Net Present Value (NPV) of the due amounts.
16. Moratorium/Deferment on due payments of spectrum purchased in past auctions (excluding the auction of 2021) for up to four years with NPV protected at the interest rate stipulated in the respective auctions.
17. Option to the TSPs to pay the principal and the interest amount arising due to the said moratorium/ deferment of payment by way of equity.

Petroleum, Crude and Natural gas

8.68 Crude oil and condensate production during the year 2020-21 was 30.49 million metric tonnes (MMT), lower than the production level of 32.17 MMT in 2019-20 and 94.3 percent of the target of 32.32 MMT for 2020-21(figure 39). India depends on imports to meet more than 80 per cent of its requirements.

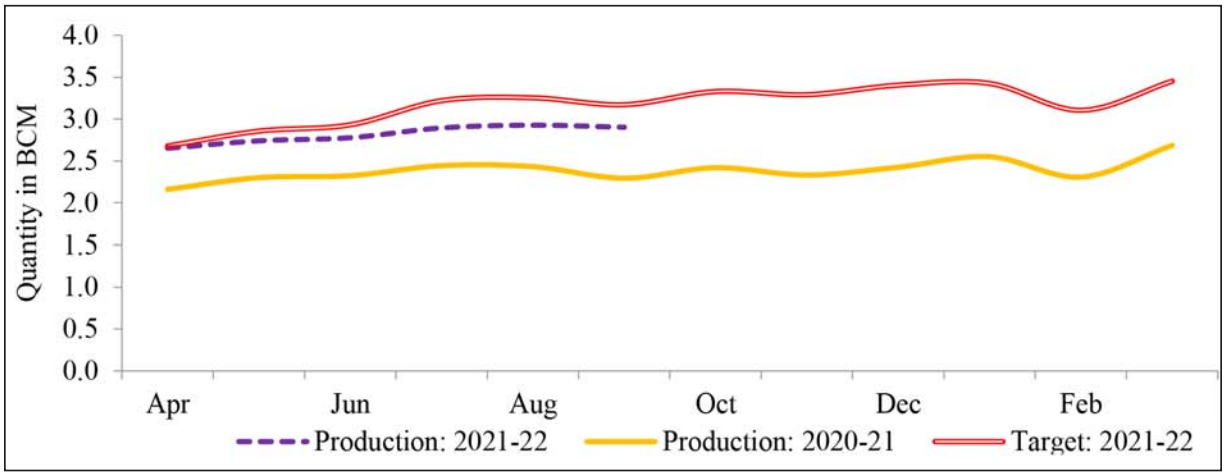
Figure 39: Production of Crude oil



Source: M/o PNG

8.69 Natural Gas production during the year 2020-21 was 28.67 billion cubic meters (BCM) as against production of 31.18 BCM in 2019-20 and 85.4 percent against the target of 33.57 BCM for 2020-21. The reasons for lower domestic oil and gas production in 2020-21include, inter-alia, declining production from old and marginal fields, unplanned shutdown and operational losses from few producing wells (figure 40).

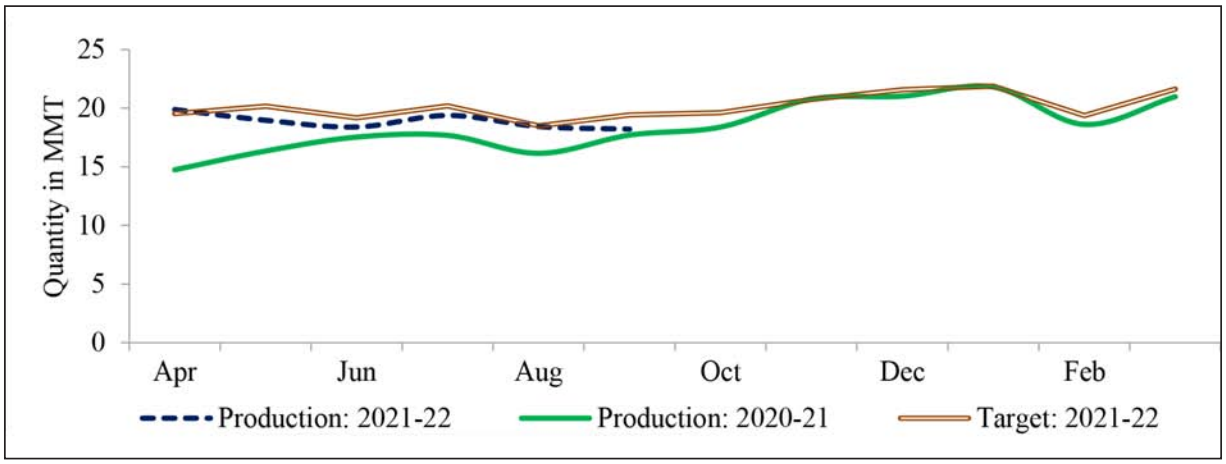
Figure 40: Production of natural gas



Source: M/o PNG

8.70 Crude Oil Processed during the year 2020-21was 221.77 MMT as against 254.39 MMT in 2019-20, showing achievement of 88.1 percent of the target of 251.66 MMT for 2020-21 (figure 41). The shortfall in crude oil processing was mainly due to lower demand of petroleum products due to COVID-19 during 2020-21.

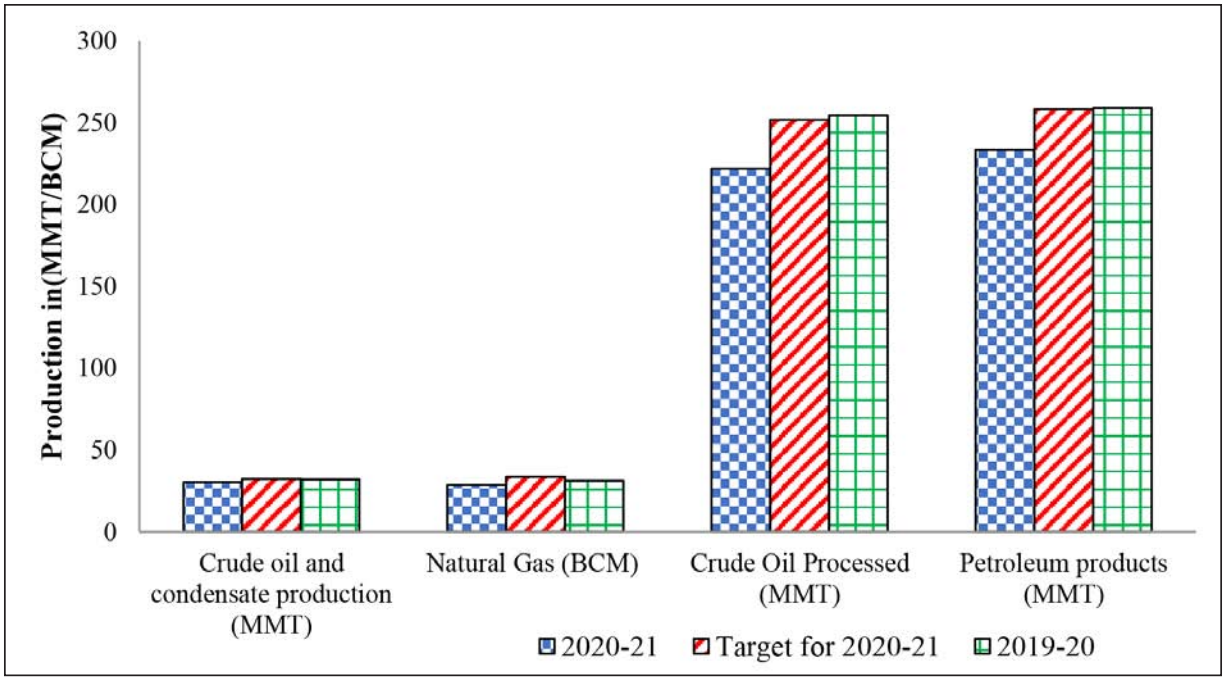
Figure 41: Production of Crude Processed oil



Source: M/o PNG

8.71 The production of petroleum products was 233.51 MMT in 2020-21 as against 258.18 MMT in 2019-20, showing achievement of 90.2 percent of the target of 259.02 MMT for 2020-21. During the year 2020-21, the consumption of petroleum products in India was 194.30 MMT, lower by 9.3 percent as compared to consumption of 214.13 MMT during 2019-20. (figure 42).

Figure 42: Production of Petroleum, crude and natural gas



Source: M/o PNG

8.72 The Government has introduced several measures to bring transparency by ensuring that projected requirements of the industry are duly uploaded, reduce transaction costs through investment in building infrastructure required for this sector and extend benefits to the weaker sections. The ”Lakshya Bharat Portal” launched in September, 2021 requires all oil and gas organizations to upload details of various items procured by them including the future

requirements. The portal is planned to mature into a central information pool for sourcing of capital goods and MRO (maintenance, repair and overhaul) of items of the oil and gas companies which in turn is expected to provide clear demand projections to enable the manufacturers to enhance their capacity and scope. This portal, which is accessible to all stakeholders is an important step towards AtmaNirbhar Bharat. The measures taken to enhance theinvestments on gas grid are encapsulated in Box 9.

8.73 The petroleum sector played a critical role throughout the COVID 19 lockdown period by maintaining fuel supplies across the country, without any interruption. The scheme of three free cylinders to Ujjwala beneficiaries provided much-needed relief to the poor households during Covid times. The second phase of the Pradhan Mantri Ujjwala Yojana, Ujjawala 2.0, was launched on 10thAugust, 2021 on pan India basis to provide additional one crore LPG connections along with free first refill and stove. As on 25.10.2021, while more than 1 crore applications have been received in this phase, a total of 54.01 lakh LPG connections have been released. Ujjwala 2.0 focuses on migrants and poor women from low LPG coverage areas.

Box 9: Measures taken to develop the national gas grid and city gas distribution network

National Gas Grid: With the aim to create nationwide gas grid, Petroleum and Natural Gas Regulatory Board (PNGRB) has authorized approximately 33,764 km natural gas pipeline network across the country, as on 31.03.2021. The National Gas Grid would connect all major demand and supply centres in India. This would ensure easy availability of natural gas across all regions and also potentially help to achieve uniform economic and social progress. As on 31 March 2021, 19,998 km of natural gas pipelines are operational and 15,369 km are under various stages of construction.

Pradhan Mantri Urja Ganga (2016): In order to develop the national gas grid, the Government has taken a decision to provide a capital grant of Rs.5176 crore (i.e., 40percent of the estimated capital cost of Rs.12,940 Cr) for development of a 2655 Km long Jagdishpur-Haldia -Bokaro-Dhamra Gas Pipeline (JHBDPL) project. It will pass through 50 districts in the State of Uttar Pradesh, Bihar, Jharkhand, Odisha & West Bengal

North East Gas Grid (2020): Government has approved the North East Gas Grid project of Indradhanush Gas Grid Limited (IGGL) with Viability Gap Funding (VGF) / Capital Grant at 60percent (Rs.5,559 crore) of the estimated cost of Rs.9,265 crore. The1,656 km long North East Gas Grid will connect eight North-Eastern states.

City Gas Distribution Network (CGD): PNGRB has authorized 232 geographical areas (GAs) for development of CGD network across the country covering more than 400 districts in 27 States/UTs which covers around 71percent of India's population and 53 percent of area. As on 31.07.2021, a total of approx. 79.47 lakh PNG Domestic connections and 3323 CNG stations have been commissioned in the country.

Electricity

8.74 India has witnessed a significant transformation from being an acutely power deficit country to a situation of demand being fully met. India has also made remarkable strides to

ensure universal access to electricity for every household. The total installed power capacity and captive power plant (industries having demand of 1MW and above) was 459.15 GW on 31.03.2021 as compared to 446.35 GW on 31.03.2020 registering a growth of 2.87 percent. Installed capacity in utilities was 382.15 GW on 31.03.2021 as compared to 370.11 GW as on 31.03.2020 – increasing by 3.25 percent. Thermal sources of energy make the largest – 61.42 percent share of total installed capacity in utilities followed by renewable energy resource (RES) with 24.7 percent and hydro by 12.09 percent. Details of all India installed capacity mode wise and source wise is given in table 6.

8.75 The total electricity generated including that from captive plants during the year 2020-21 was 15.73 lakh GWh as compared to 16.23 lakh GWh during the year 2019-20, of which 13.73 lakh GWh was generated by utilities and 2 lakh GWh in captive plants. Between 2020-21 and 2019-20, maximum rise in electricity generation was recorded in diesel based thermal energy for utilities and RES for captive plants. Overall, due to pandemic led disruptions in economic activity, electricity generation was lower in the year 2020-21 which is now expected to increase with the recovery of the economy. Details of mode wise source wise electricity generation are given in table 7. Figure 44 gives composition of total installed capacity and electricity generation for the year 2020-21.

Renewable energy – Solar, Wind, Biomass and small hydro energy

8.76 India has witnessed the fastest rate of growth in renewable energy capacity addition among all large economies, during the last 7.5 years with renewable energy capacity growing by 2.9 times and solar energy expanding by over 18 times. Renewable energy (excluding large hydro) constitutes over 24.71 percent of the country's installed power capacity and around 10.7 percent of the electrical energy generation for year 2020-21. As of 31 October 2021, India's total renewable energy installed capacity (excluding hydro power above 25 MW) has reached over 103.05 GW. During the last 7.5 years, if large hydro is included, the share of renewable energy in electric installed capacity is estimated to be about 38.27 percent (as of October 2021) and its share in electric energy generation is estimated to be about 26.96 percent (for the month of August 2021).The difference in the share of renewable energy in installed capacity and electricity generation is because of the variability in thesunshine hours or extent of wind which in turn will determine the utilization of the installed capacity.

8.77 In order to facilitate renewable power evacuation and reshaping the grid for future requirements, the Green Energy Corridor (GEC) projects have been initiated. The GEC Project aims at synchronizing electricity produced from renewable sources, such as solar and wind, with conventional power stations in the grid. The first component of the scheme, Inter-state GEC with target capacity of 3200 circuit kilometer (ckm) transmission lines and 17,000 MVA capacity sub-stations, was completed in March 2020. The second component - Intra-state GEC with a target capacity of 9700 ckm transmission lines and 22,600 MVA capacity sub-stations is expected to be completed by June 2022 (BOX 10 on Transition to clean energy).

Table 6: All India Installed Capacity Mode-Wise

Year	Thermal							Total (2+3+7+8)
in GW	Hydro	Steam	Diesel	Gas	Total Thermal (3+4+5)	Nuclear	RES	
1	2	3	4	5	6	7	8	9
(1) Utilities								
2019-20	45.70	205.13	0.51	24.96	230.60	6.78	87.03	370.11
2020-21	46.21	209.30	0.51	24.92	234.73	6.78	94.43	382.15
% change	***1.12***	***2.03***	***0.00***	***-0.13***	***1.79***	***0.00***	***8.51***	***3.25***
(2) Non-Utilities (Industries having demand of 1 MW & above)								
2019-20	0.13	51.54	12.77	7.32	71.63	0.00	4.48	76.24
2020-21@	0.13	52.06	12.90	7.39	72.35	0.00	4.52	77.00
% change	***1.00***	***1.00***	***1.00***	***1.00***	***1.00***	***0***	***1.00***	***1.00***
(3) Installed Capacity : (1+2)								
2019-20	45.83	256.68	13.28	32.27	302.23	6.78	91.50	446.35
2020-21	46.34	261.35	13.41	32.31	307.08	6.78	98.95	459.15
% change	***1.12***	***1.82***	***0.96***	***0.13***	***1.60***	***0.00***	***8.14***	***2.87***

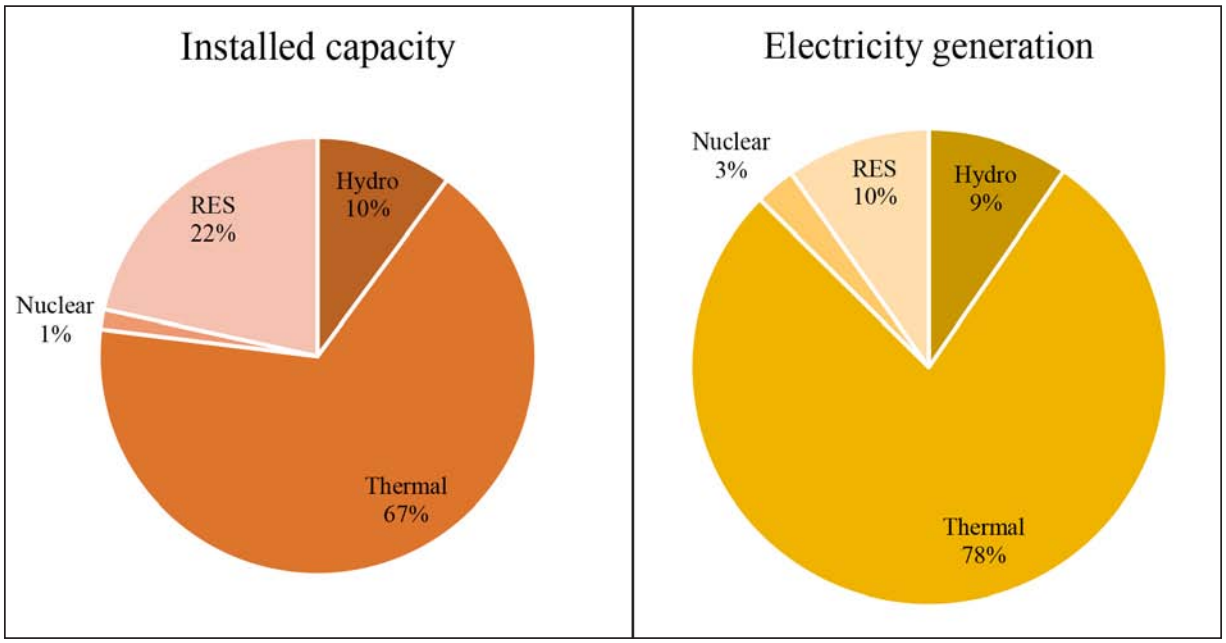
Source: Survey Calculations based on data from Central Electricity Authority. @ Estimated

Table 7: All India Gross Electricity Generation Mode-Wise

Year	Thermal							Total (2+6+7+8)
(Lakhs GWh)	Hydro	Steam	Diesel	Gas	Total Thermal) (3+4+5)	Nuclear	RES	
1	2	3	4	5	6	7	8	9
(1) Utilities Gross Electrical Energy Generation								
2019-20	1.56	9.94	0.00199	0.48	10.43	0.46	1.38	13.83
2020-21	1.50	9.81	0.00216*	0.51	10.33	0.43	1.47	13.73
% change	***-3.5***	***-1.3***	***9.0***	***5.2***	***-1.0***	***-7.4***	***6.4***	***-0.7***
(2) Non-Utilities Gross Electrical Energy Generation (Industries having capacity 1 MW & Above)								
2019-20	0.00	2.06	0.02	0.25	2.33	0.00	0.06	2.40
2020-21 @	0.00	1.69	0.02	0.21	1.92	0.00	0.07	2.00
% change	***0.7***	***-17.7***	***4.3***	***-16.5***	***-17.4***	***0.0***	***15.2***	***-16.5***
(3) Total Gross Electrical Energy Generation (1+2)								
2019-20	1.56	12.00	0.02	0.74	12.76	0.46	1.45	16.23
2020-21	1.51	11.51	0.02	0.72	12.25	0.43	1.55	15.73
% change	***-3.5***	***-4.1***	***4.8***	***-2.3***	***-4.0***	***-7.4***	***6.8***	***-3.1***

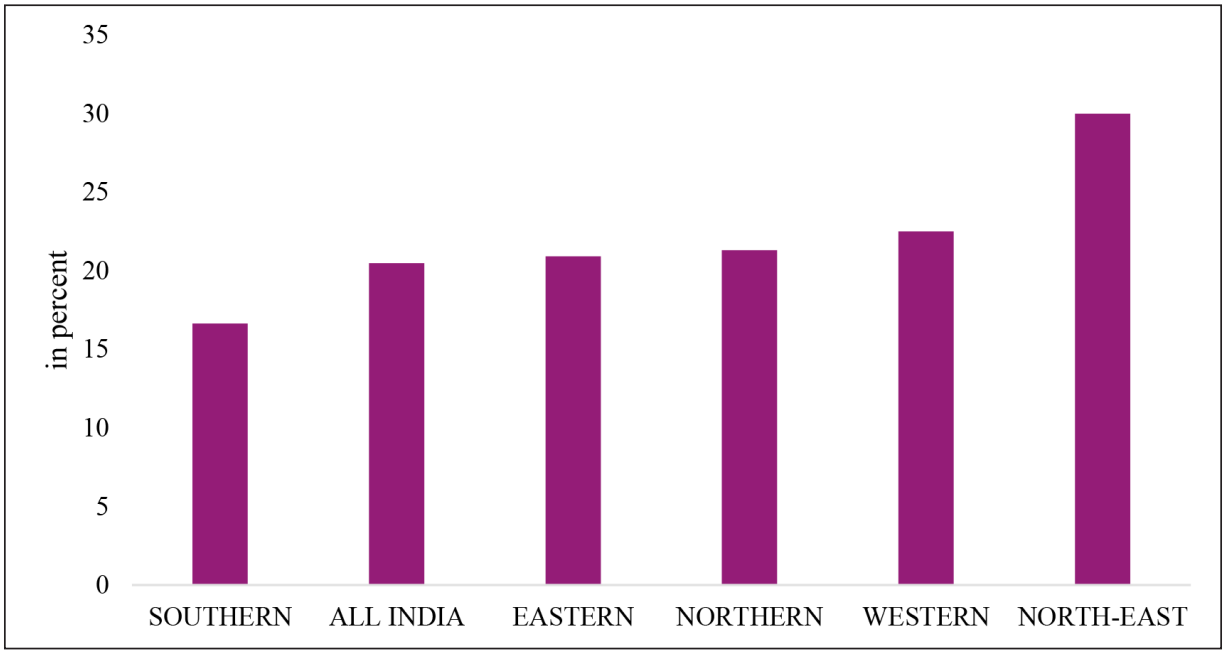
Source: Survey Calculations based on data from Central Electricity Authority. *-provisional, @ Estimated

Figure 44: Source of Installed Capacity and electricity generation 2020-21



Source: Survey Calculations based on data from Central Electricity Authority. Includes both Utilities and captive plants. Thermal includes gas, steam and diesel.

Figure 45: Energy loss in transformation, transmission and distribution and unaccounted for as a percentage of Net energy available for supply



Source: Central Electricity Authority

8.78 The energy losses in transformation, transmission and distribution during the year 2019-20 was at 20.46 percent for all India which was highest for the North east region - 29.98 percent (figure 45). In order to prevent such losses the government has mandated electricity distribution companies to undertake quarterly energy accounting through a certified energy manager which

will give detailed information about electricity consumption by different categories of consumers & the transmission and distribution losses in various areas and enable corrective actions.

Box 9: Transitioning to clean energy

The two main pillars for mitigation action to achieve net-zero carbon ambition are transition to clean and renewable sources of energy and storage of this energy. The World bank in its report Minerals for Climate Action has in its report mentioned that this transition from conventional fossil fuel-based energy to clean energy as well as battery storage will be more mineral intensive. Minerals and metals like copper, aluminum, iron, manganese, nickel etc are critical for developing clean energy sources like solar PV, wind, nuclear while minerals like lithium and graphite are important for energy storage. Therefore, on the policy front, it is pertinent to prepare for this. In this regard, the following is essential –

- Pace at which shift from conventional fossil-fuel based sources is made. The pace will determine the extent and mix of investment in renewable sources of energy.
- With the developed countries as frontrunners of net-zero emission plans, it is important to avoid the risk of being a late comer. The inelastic supply of minerals is already in increasing the prices of minerals which is likely to shoot up even further in the future.
- Encourage R&D to ensure effortless switch to renewable sources of energy. This may also include focus on developing technology that recycles, reuses and repurposes minerals.

The recent surge in prices of natural gas in Europe on account of higher energy demand coupled with cold spells across the region and slower winds to run wind turbines has resulted in lower electricity output. The energy crisis being experienced by Europe brings to the fore the need for having a diversified mix of sources of energy of which fossil fuels are an important part. Simultaneously focus should be laid on building storage for intermittent electricity generation from solar PV and wind farms to ensure on-demand energy supply.

CONCLUSION

8.79 Initiatives under Atma Nirbhar Bharat including introduction of structural and procedural reforms, record vaccinations, various PLI scheme designed to attract investments in sectors of core competency and cutting edge technology, Make-in-India programme to boost domestic manufacturing capacity, reduction of corporate tax rate, etc and steps to improve operational efficiency have helped the industrial sector to keep up its ante. The sector has started to recover steadily and according to the National Statistical Office, is expected to grow at 11.8 percent in 2021-22.The performance of the Index of Industrial Production while a little subdued at 1.4 per cent in November 2021 vis a vis the same month in the previous year must be viewed along with growth of 17.4 percent in April-November 2021 as compared to -15.3 percent in the corresponding period of last year. Most components of IIP have recovered to the pre-lockdown level.

8.80 The Government has charted out a comprehensive programme for industrial transformation. With emphasis on supply side measures, the reforms address long known bottlenecks of insufficient infrastructure, tardy business processes and labour market reforms. Introduction of the production linked incentive schemes intends to encourage the scaling up of industries that are strategic in nature or are technology intensive. The objective being to create the capacity to integrate with the global value chains. Several measures have been taken to reduce transaction costs especially for the small and medium enterprises as well as facilitate inflow of capital, technology and international best practices into the industries. The new CPSE policy provides a roadmap for disinvestment, opening up avenues for their further growth and improvement in efficiency while enabling the government to focus its resources on developmental needs of the country.

8.81 The recovery of the industrial sector, positive business expectations propelled by extensive reforms and improved consumer demand, suggests that further improvements in the industrial performance can be expected.

09

CHAPTER

Services

The services sector as a whole has mostly recovered from the impact of the nationwide lockdown imposed during March-May 2020 and localised lockdowns during the second covid wave in April-May 2021, although some of the sub-sectors continue to be impacted. During the first half of 2021-22, the Services sector grew by 10.8 per cent. The recovery is more pronounced given the Gross Value Added (GVA) of Services crossed the pre-pandemic level in Q2 2021-22. However, being a contact intensive sub-sector, GVA of 'Trade, hotels, transport, communication & services related to broadcasting' still remains below its pre-pandemic level. The overall Services sector GVA is expected to grow by 8.2 per cent in 2021-22, although the spread of Omicron variant brings in a degree of uncertainty for near term, especially in segments that require human contact.

High frequency indicators such as services purchasing managers' index, air freight and rail freight bottomed out in 2020. The impact of second covid wave in April-May 2021 on these indicators was much more muted as compared to during the full lockdown in March-May 2020. During April-December 2021, rail freight crossed its pre-pandemic level while air freight and port traffic almost reached their pre-pandemic level. Domestic air and rail passenger traffic is also increasing gradually. The global issue of container shortage is impacting port traffic.

Services exports, after the initial slump during the first three quarters of 2020-21, surpassed its pre-pandemic level in Q4 2020-21. During H1 2021-22, services exports grew by 21.6 per cent, deriving strength from global demand for software and IT services exports. India's share in world commercial services exports increased to 4.1 per cent in 2020. Moreover, the IT-BPM services revenue reached US$ 194 billion in 2020-21, adding 1.38 lakh employees during the same period. The Government undertook a major reform of removing telecom regulations in the IT-BPO sector. As per a survey conducted by NASSCOM, these reforms have reduced compliance burden, enhanced productivity, increased global competitiveness and lowered the cost of doing business in India. Similarly, the Government has opened up space sector to private players, which will enhance the socio-economic use of space assets and activities. During the first half of 2021-22, the Services sector received over US$ 16.7 billion FDI accounting for almost 54 per cent of the total FDI inflows into India.

Startups in India have grown remarkably over the last six years. The number of new recognised starups have increased to over 14,000 in 2021-22 from only 733 in 2016-17. As a result, India has become the third largest startup ecosystem in the world after the US and China. Further, a record 44 Indian startups have achieved unicorn status in 2021 taking the overall tally of unicorns in India to 83, most of these are in the services sector.

INTRODUCTION

9.1 Services sector contributes over 50 per cent to India's GDP. While Covid-19 pandemic has had an adverse impact on most sectors of the economy, the services sector has been the worst affected as its' share in India's GVA declined from 55 per cent in 2019-20 to 53 per cent in 2021-22.[1] Within the services sector, the effect of Covid-19 has been varied. While non-contact services such as information, communication, financial, professional and business services have remained resilient, the impact has been much severe on contact based services such as tourism, retail trade, hotel, entertainment and recreation, etc.

IMPACT OF COVID-19 AND SEQUENTIAL RECOVERY

9.2 The services sector contracted by 8.4 per cent Year on Year (YoY) in 2020-21 (Table 1). This decline was driven by a sharp contraction of 18.2 per cent YoY in the sub-sector 'Trade, hotels, transport, communication & services related to broadcasting'. Owing to its contact intensive nature, the services included in this sub-sector had to bear the maximum brunt of the disruptions caused by the prevailing pandemic. The sub-sector 'Public administration, defence & other services' which includes expenditure by the government on one hand and services such as health, education, recreation etc, on the other, contracted by 4.6 per cent YoY in 2020-21. The relatively less contact intensive sub-sector 'Financial, real estate & professional services' was the least impacted, with a marginal decline of 1.5 per cent YoY in its GVA during 2020-21 (Table 1).

9.3 During the first half of the current fiscal year, the services sector has registered a steady recovery. Overall, the services sector grew by 10.8 per cent YoY in first half (H1) 2021-22 (Table 1). A closer look at the quarterly estimates shows that Gross Value Added (GVA) in services sector (excluding construction) crossed its pre-pandemic level[2] in Q2 2021-22 (Table 2, which compares the performance of quarterly GVA over the GVA in Q3 2019-20). The sub-sector 'Trade, hotels, transport, communication & services related to broadcasting', which was the worst hit last year, grew by 18.4 per cent YoY in H1 2021-22. However, the quarterly GVA of this sub-sector is still below its pre-pandemic level (Table 2). On the other hand, GVA of 'Public administration, defence & other services' sub-sector witnessed a robust recovery. During H1 2021-22, the sub-sector grew by 12 per cent YoY, surpassing its pre pandemic level in Q2 2021-22 (Table 2). The ramping up of government expenditure in the wake of Covid-19 has contributed to the recovery of this sub-sector. Further, the sub-sector 'Financial, real estate & professional services' expanded by 5.8 per cent YoY in H1 2021-22, its GVA remained resilient throughout (Table 2).

[1]As per the Advance Estimates of 2021-22.
[2]Pre-pandemic level denotes Q3 2019-20 GVA

Table 1: Services Sector Performance

Sector	Share in GVA (per cent)	Growth (YoY) (per cent)						
	2021-22 (AE)	2018-19 (2nd RE)	2019-20 (1st RE)	2020-21 (PE)	2021-22 (AE)	2021-22		
						Q1	Q2	H1
Total Services (Excluding construction)	**53**	**7.2**	**7.2**	**-8.4**	**8.2**	**11.4**	**10.2**	**10.8**
Trade, hotels, transport, communication & services related to broadcasting	16.9	7.1	6.4	-18.2	11.9	34.3	8.2	18.4
Financial, real estate & professional services	20.9	7.2	7.3	-1.5	4.0	3.7	7.8	5.8
Public administration, defence & other services*	15.2	7.4	8.3	-4.6	10.7	5.8	17.4	12.0

Source: Ministry of Statistics and Programme Implementation.
Note: Share in GVA is in current prices and growth in GVA is at constant 2011-12 prices;
*: Other services include Education, Health, Recreation, and other personal services
RE: Revised Estimates. PE: Provisional Estimates. AE: Advance Estimates

Table 2: Gross Value Added in Services sub-sectors
Relative To Pre-Pandemic Levels (Q3 2019-20 GVA= 100)

Sector	2020-21 Q1	2020-21 Q2	2020-21 Q3	2020-21 Q4	2021-22 Q1	2021-22 Q2
Trade, hotels, transport, communication & services related to broadcasting	52	81	92	108	70	87
Financial, real estate & professional services	123	126	107	107	127	136
Public administration, defence & other services	78	88	98	103	83	104
Total Services	84	99	99	106	94	109
Total GVA	78	92	101	106	92	100

Source: Ministry of Statistics and Programme Implementation.

9.4 As per the first advance estimates, Gross Value Added (GVA) of services sector is estimated to grow by 8.2 per cent in 2021-22. Sub-sectors 'Trade, hotels, transport, communication & broadcasting services', 'Financial, real estate & professional services', and 'Public administration, defence & other services' are estimated to expand by 11.9 per cent, 4 per cent and 10.7 per cent respectively in 2021-22. A part of this growth is attributable to the low base in 2020-21. It is, however, pertinent to note that at the time of writing the Economic survey, new restrictions were being introduced within the country and worldwide due to the Omicron variant, posing fresh risk to the ongoing recovery, especially in contact intensive segments.

TRENDS IN HIGH FREQUENCY INDICATORS

9.5 The upturn in Services GVA, when seen with the trend in high frequency indicators such as Purchasing Managers Index (PMI) Services Index, freight and passenger traffic point to a pickup in economic momentum.

Services PMI

9.6 India's services sector activity, gauged by PMI services, which had contracted for five consecutive months since March 2020, recovered sharply in October 2020. It dropped again for three consecutive months (May, June and July 2021) as a consequence of the second Covid-19 wave. Notably, the contraction during May-July 2021 was not as sharp as seen during the first lockdown.

9.7 With the easing of restrictions, PMI Services started to grow once again from August 2021 recording strongest jump in over 10 years to 58.4 in October 2021[3] (Figure 1(a)). PMI index moderated to 55.5 in December 2021.

Freight traffic

9.8 The freight traffic (rail, air and port) had fallen sharply as a consequence of the complete lockdown in March 2020 (Figure 1(b, c and d)). As the economy gradually opened up from June 2020, freight traffic also started to improve. Freight traffic registered strong growth in during April- June 2021, partly reflecting the rebound from the low base during the same period last year. The impact of second covid wave in April-May 2021 on these indicators was much more muted as compared to during the full lockodwn in March-May 2020.

9.9 In 2021-22 (till December), total freight loading by Indian railways was 1,029.94 Million Tonnes (MT) which is 18.37 per cent higher than 870.08 MT during the same period in 2020-21. Infact, Indian railways recorded almost 16 per cent increase in freight loading as compared to the corresponding period during the pre-pandemic year (2019-20), where the freight loading was 888.88 MT.

9.10 Indian airports handled 20.97 lakh tonnes of freight in 2021-22 (till November) as compared to 14.44 lakh tonnes during the same period last year recording a growth of 45.25 per cent. This is slightly lower than the air freight loading of 22.88 lakh tonnes during the pre-pandemic period of April-November 2019.

9.11 Between April- November 2021, Indian ports handled total traffic of 857.3 MT as compared to 779.1 MT handled during the same period in 2020, registering a growth of over 10 per cent. The cargo traffic recorded so far in 2021 has almost reached the pre-pandemic level of 864.3 MT during April- November 2019.

[3]A reading above 50 indicates expansion in economic activity.

Figure 1(a): Services PMI Index

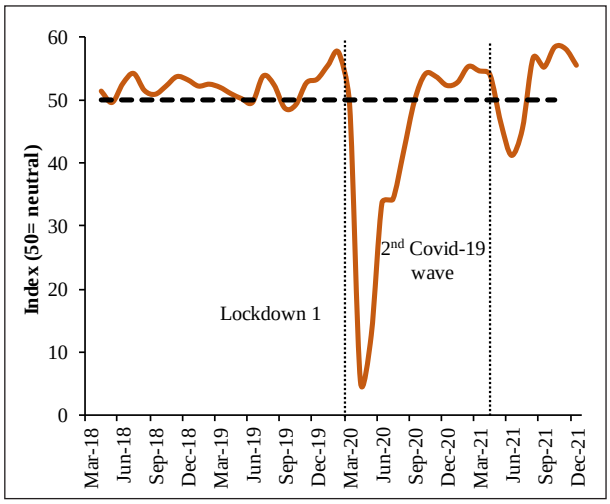


Figure 1(b): Rail Freight

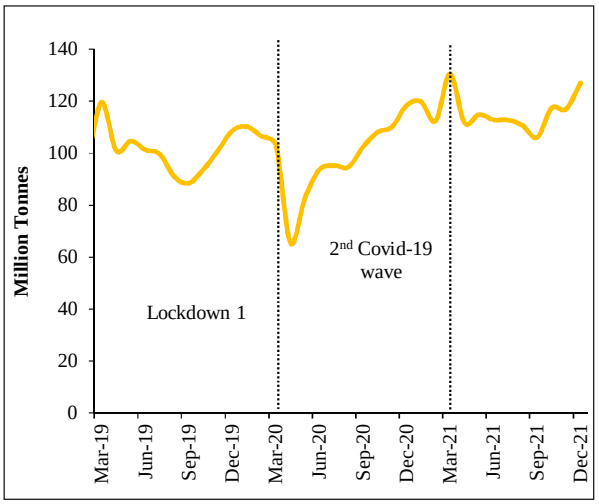


Figure 1(c): Air Freight

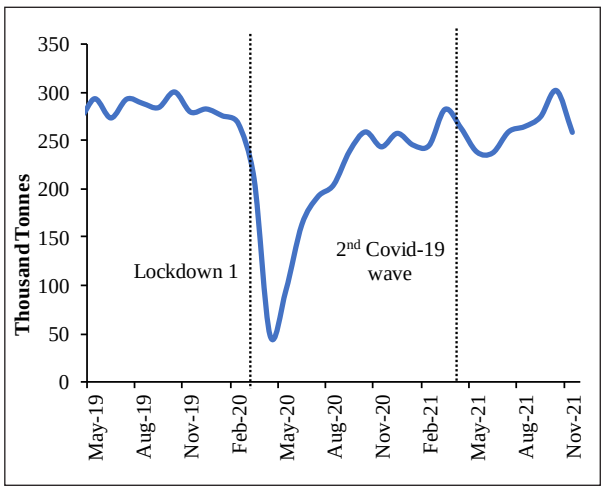


Figure 1(d): Cargo Traffic

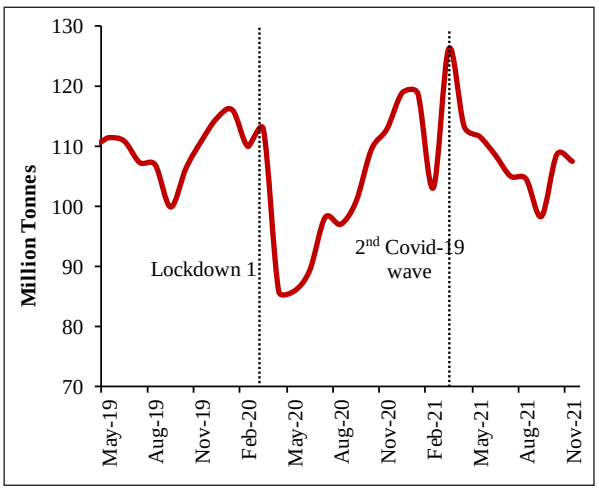


Figure 1(e): Domestic Air Passenger Traffic

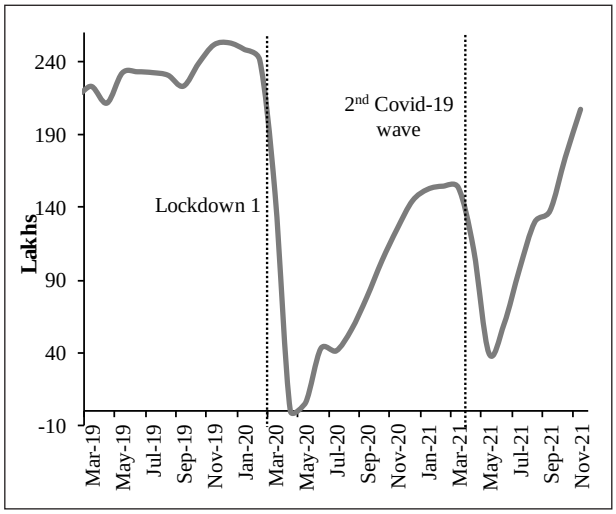
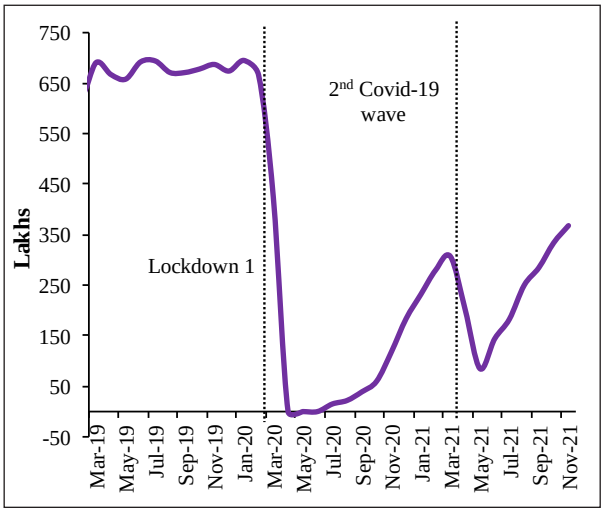


Figure 1(f): Rail Passenger Traffic



Source: IHS Markit Economics, Indian Railways, Airports Authority of India, Ministry of Ports, Shipping and Waterways.

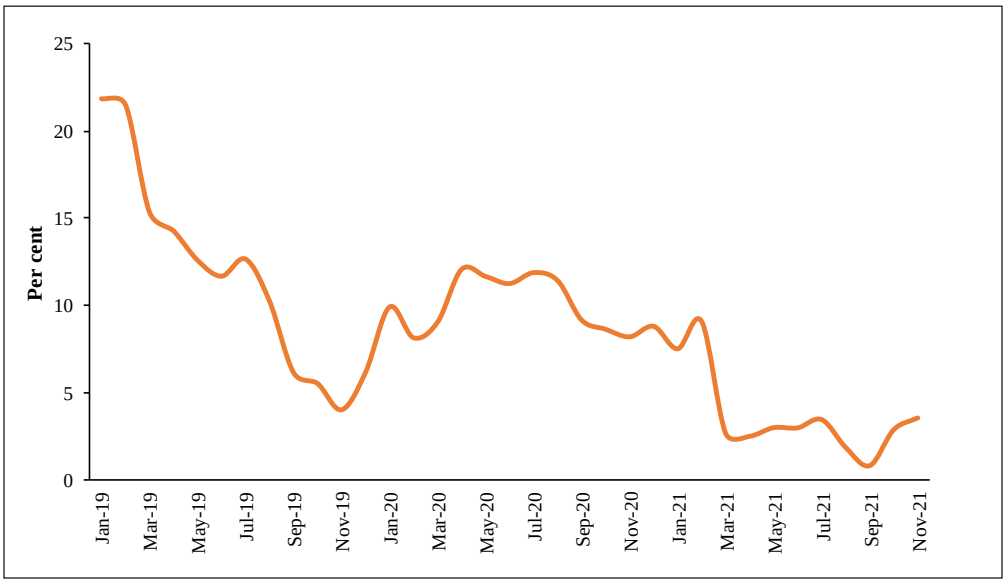
Passenger traffic

9.12 Travel restrictions in the early half of 2020-21 had halted the movement of Indian airlines and railways leading to a sharp fall in air and rail passenger traffic (Figure 1(e and f)). Domestic passenger traffic (both air and rail) had then started to recover gradually from August 2020 on a monthly basis but fell again in April-May 2021 due to the disruptions caused by second wave of Covid-19. It has picked up since then. During April- November 2021, airlines carried over 9.56 crore domestic passengers. Monthly data suggests that air passenger traffic is gradually reaching the pre-pandemic levels. Railway passenger traffic, on the other hand, is still much below the pre-pandemic levels. During April-November 2021, Indian railways carried over 185.1 crore domestic passengers. The emergence of the Omicron variant and the consequential travel restrictions pose a threat to the domestic passenger traffic in the near term.

Bank credit to Services Sector

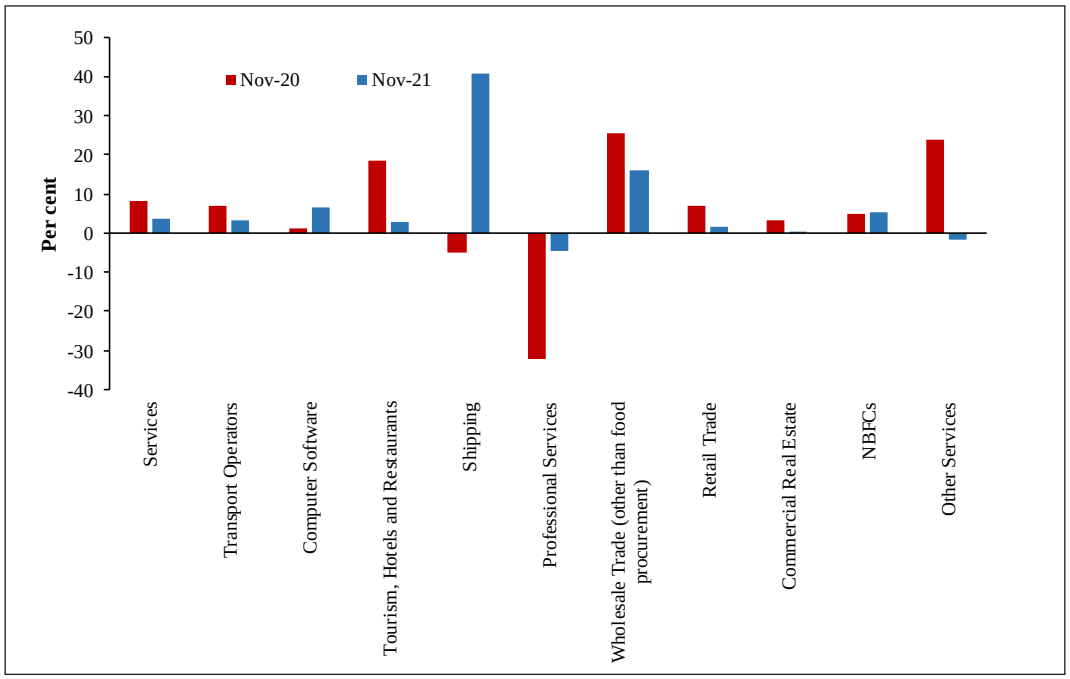
9.13 Bank credit growth to services sector which had moderated significantly in 2019, started picking up in 2020, increasing to 8.8 per cent (YoY) at the end December 2020, as compared to 6.2 per cent in December 2019 (Figure 2). This momentum has lost its pace in 2021-22. Bank credit growth decelerated to 3.6 per cent YoY at the end of November 2021 as compared to 8.2 per cent a year ago. However, it is important to note that corporates have raised more money through capital markets than banking capital in 2021-22 so far (See Chapter 4 Monetary Management and Financial Intermediation for details).

Figure 2: Growth in Bank Credit to Services Sector



Source: RBI.

Figure 3: Growth in Bank Credit to Services Sub-Sectors (YoY)



Source: RBI.
Note: Data denotes Credit outstanding as on November 2020 and 2021.

9.14 Bank credit to services sector registered a growth (YoY) of 3.6 per cent in November 2021, as compared to the 8.2 per cent a year ago (Figure 3). The slowdown in growth is largely on account of the lower growth in credit to 'Tourism, Hotel & Restaurants', 'Transport Operators' and Trade- Retail as well as Wholesale. On the other hand, growth in bank credit picked up in 'Computer Software', 'Shipping', and 'Non-Banking Financial Companies (NBFCs).

SERVICES SECTOR SHARE AT THE STATE AND UT LEVEL

9.15 The services sector accounts for more than 50 per cent of the Gross State Value Added (GSVA) in 12 out of the 33 states and UTs (Table 3). Chandigarh stands out with a particularly high share of services in GSVA at 74 per cent while Sikkim's share remains the lowest at 24.25 per cent. Notably, Services share in Sikkim's GSVA has increased from over 18 per cent in 2018-19 to over 24 per cent in 2020-21. Similarly, over the last three years, share of services in GSVA has increased by over 4 per cent for Himachal Pradesh and Odisha. Maharashtra and Karnataka are the top two contributors to services GSVA, with Rs 15.1 lakh crore and Rs 9.71 lakh crore gross value added by services sector in 2020-21 respectively.

9.16 Due to the Covid-19 pandemic and restrictions in movement, GSVA in services sector declined in 2020-21 relative to the pre-pandemic year 2019-20. This is true for 13 out of 20 states for which data is available. During 2020-21, services GSVA contracted by almost 11 per cent in Rajasthan, and by almost 10 per cent in Jharkhand and Punjab. On the other hand, Sikkim achieved the highest growth of 11.71 per cent in services GSVA during 2020-21.

Table 3: Services Sector Performance at the State and UT Level

State	Services Share in GVA (per cent)			Growth in Services GVA (per cent, YoY)		
	2018-19	2019-20	2020-21	2018-19	2019-20	2020-21
A and N Islands	64.09	64.82	64.82	5.05	5.66	-
Andhra Pradesh	42.25	41.86	41.64	8.24	6.20	-6.71
Arunachal Pradesh	47.84	46.82	-	-1.19	12.22	-
Assam	39.20	42.37	-	-1.64	8.08	-
Bihar	54.78	56.20	57.14	13.94	7.30	-0.11
Chandigarh	73.47	74.00	-	2.66	5.50	-
Chhattisgarh	30.02	30.64	31.18	8.32	7.71	0.75
Delhi	67.84	68.22	68.58	6.20	7.30	-5.48
Goa	26.54	28.69	-	2.15	6.43	-
Gujarat	25.18	25.73	-	11.03	8.01	-
Haryana	40.74	41.98	42.83	7.36	9.02	-5.67
Himachal Pradesh	30.68	32.62	35.45	5.68	7.75	0.50
Jammu and Kashmir	53.39	54.66	57.15	10.58	3.04	2.08
Jharkhand	34.50	37.28	36.19	9.51	8.23	-9.99
Karnataka	52.83	54.83	56.08	8.72	6.73	-3.05
Kerala	52.24	53.29	-	7.78	4.09	-
Madhya Pradesh	33.30	32.94	31.14	9.96	8.70	-8.94
Maharashtra	45.19	47.10	-	7.24	8.29	-
Manipur	60.31	59.77	-	6.62	5.53	-
Meghalaya	56.55	58.33	59.62	10.89	8.19	-8.67
Mizoram	49.61	50.82	-	6.63	16.49	-
Nagaland	57.56	57.45	-	8.59	7.92	-
Odisha	30.27	32.70	34.37	2.24	8.43	-1.01
Puducherry	33.91	34.57	-	6.68	7.95	-
Punjab	40.43	42.34	41.83	6.95	5.60	-9.40
Rajasthan	43.43	44.01	43.07	11.18	4.43	-10.95
Sikkim	18.20	21.82	24.25	11.54	20.92	11.71
Tamil Nadu	40.80	41.21	41.81	5.65	5.40	1.11
Telangana	53.89	54.90	54.53	7.91	5.69	-3.94
Tripura	45.45	45.87	47.95	8.98	13.78	1.78
Uttar Pradesh	40.77	42.32	42.35	7.64	7.72	-8.50
Uttarakhand	27.99	28.58	-	6.41	6.03	-
West Bengal	46.15	47.81	49.77	5.87	7.74	0.59

Source: Handbook of Statistics on Indian States, RBI.
Note: - Data not available at the time of writing the Survey

FDI INFLOWS INTO SERVICES SECTOR

9.17 Services sector is the largest recipient of FDI inflows in India. According to the World Investment Report 2021 by the UN Conference on Trade and Development (UNCTAD), India was the fifth-largest recipient of Foreign Direct Investment (FDI) in 2020 improving its rank by four places, from ninth position in 2019. In 2020-21, India registered highest ever annual FDI inflows of US$ 81.97 billion. The country has received US$ 43.12 billion FDI inflows in the first six months of 2021-22. FDI equity inflows, i.e., FDI inflows minus re-invested earnings, were US$ 31.15 billion during April-September 2021, growing by 3.8 per cent over the corresponding period last year.

9.18 During H1 2021-22, services sector received US$ 16.73 billion FDI equity inflows. This is over 29 per cent lower than the FDI equity inflows into services in the corresponding period last year. This fall was driven by Computer Software & Hardware sub-sector. In H1 2020-21, FDI equity inflows into 'Computer Software & Hardware' sub-sector was US$ 17.55 billion. It has declined by US$ 10 billion to reach US$ 7.12 billion in H1 2021-22. However, this is still 77 per cent higher than the FDI equity inflows into this sub-sector during H1 2019-20. On the other hand, 'Financial, Business, Outsourcing, R&D, Courier, Tech Testing & Analysis', 'Education' sub-sector witnessed strong inflows amounting to US$ 3.16 billion and US$ 2.25 billion respectively in April-September 2021. Nonetheless, the services sector still accounts for over 50 per cent of the total FDI equity inflows into India during this period (Table 4).

Table 4: Gross FDI Equity Inflows into Services Sector

Services Sub-Sectors	Share in Gross FDI Equity Inflows into Services Sector in 2021-22 (per cent)*	(US$ Million)					
		2018-19	2019-20	2020-21	April-Sep 2019	April-Sep 2020	April-Sep 2021
Financial, Business, Outsourcing, R&D, Courier, Tech Testing & Analysis	18.84	9,158	7,854	5,060	4,455	2,252	3,152
Computer Software & Hardware	42.59	6,415	7,673	26,145	4,025	17,554	7,124
Trading	12.27	4,462	4,574	2,608	2,143	949	2,052
Telecommunications	2.25	2,668	4,445	392	4,280	7	376
Information & Broadcasting	0.54	1,252	823	314	196	161	91
Hotel & Tourism	2.21	1,076	2,938	369	859	283	370
Hospitals & Diagnostic Centers	1.97	1,045	635	501	376	163	329
Education	13.44	777	3,245	1,250	216	604	2,248
Retail Trading	1.38	443	472	1,338	243	1,230	231
Consultancy Services	0.91	411	1,047	938	473	110	153
Sea Transport	2.22	279	199	294	173	144	372
Air Transport	1.14	191	918	204	114	97	190

Agriculture Services	0.25	88	46	124	23	60	42
Gross FDI Equity Inflows into Services Sector (US$ million)		**28,265**	**34,868**	**39,539**	**17,577**	**23,612**	**16,727**
Change from Previous Year (per cent)		**-2.4**	**23.4**	**13.4**	**33.1**	**34.3**	**-29.2**
Gross FDI Equity Inflows into India (US$ million)		**44,366**	**49,977**	**59,636**	**26,096**	**30,004**	**31,153**
Share of Services Sector in Gross FDI Equity Inflows (per cent)		**63.7**	**69.8**	**66.3**	**67.4**	**78.7**	**53.7**

Source: Department for Promotion of Industry and Internal Trade (DPIIT).
Note: *: Up to September 2021

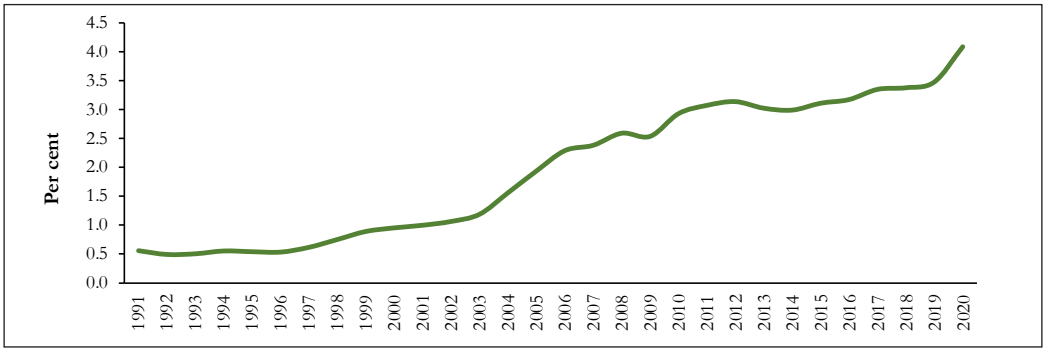
TRADE IN SERVICES SECTOR

9.19 World trade in commercial services plummeted in 2020 following the Covid-19 pandemic. The slowdown in global services was predominately due to restrictions on travel and tourism and reduction in transportation services, largely in the passenger segment (WTO, 2021). In 2021 so far, world trade in services has shown signs of recovery as a result of world-wide extensive inoculation and resumption in global economic activity. According to WTO, global services trade returned to positive growth territory in April-June 2021, rising 26 per cent yoy largely reflecting the rebound from same period last year, the quarter in which the strongest impact due to Covid-19 was felt. Bolstered by increased demand for goods, shipping under-capacity and higher freight costs, transport services improved on YoY basis. However, travel services remain below pre-pandemic levels. Despite signs of recovery, the WTO expects global services trade to grow at a slower pace than goods trade in 2021, particularly in sectors related to travel and leisure.

Services exports

9.20 India has a dominant presence in global services exports (Figure 4). It remained among the top ten services exporter countries in 2020, with its share in world commercial services exports increasing from 3.4 per cent in 2019 to 4.1 per cent in 2020.

Figure 4: India's share in World Commercial Service Exports



Source: World Bank
Note: Commercial service exports are total service exports minus exports of government services not included elsewhere. International transactions in services are defined by the IMF's Balance of Payments Manual (1993) as the economic output of intangible commodities that may be produced, transferred, and consumed at the same time.

9.21 The impact of Covid-19 induced global lockdown on India's services exports was less severe as compared to merchandise exports. During 2020-21, India's goods exports (BoP basis) declined by 7.5 per cent (YoY), while services exports declined by only 3.3 per cent (YoY). The impact was much severe in travel exports, which fell almost 72 per cent in 2020-21. During H1 2021-22, with vast inoculation drive and pickup in global demand, India's services exports increased by 21.6 per cent as against a fall of 7.8 per cent during the same period a year ago (Table 5). The improvement in exports was seen in almost all services sub-sectors, barring travel services which remained in contractionary mode due to persisting restrictions on international travel and tourism (Table 5).

Table 5: Services Trade Performance by sub-sector

Commodity Group	Share (per cent)		Value (US$ Billion)				Growth (per cent YoY)			
	2010-11	2020-21	2019-20	2020-21	2020-21 (Apr-Sept)	2021-22 (Apr-Sept)	2019-20	2020-21	2020-21 (Apr-Sept)	2021-22 (Apr-Sept)
Total Services Exports	**100**	**100**	**213.2**	**206.1**	**96.8**	**117.6**	**2.5**	**-3.3**	**-7.8**	**21.6**
Travel	12.7	4.1	30.0	8.5	4.0	3.7	5.5	-71.7	-72.5	-6.6
Transportation	11.4	10.6	21.0	21.9	10.2	14.3	7.8	4.1	-3.3	40.7
Insurance	1.6	1.2	2.4	2.4	1.2	1.6	-8.7	-2.2	-3	35.9
GNIE*	0.4	0.3	0.7	0.6	0.3	0.4	8.0	-4.5	-8.8	43.7
Software Services	42.6	48.5	93.1	100	47.4	57.6	11.5	8.6	2.9	21.4
Business Services	19.3	23.9	45.7	49.2	22.9	26.8	16.9	7.5	2.5	17.1
Financial Services	5.2	2.1	4.7	4.3	2.0	2.5	-2.6	-8.3	-20.3	24.4
Communication	1.3	1.4	2.7	2.8	1.4	1.6	6.3	2.9	2.4	15.0
Total Services Imports	**100**	**100**	**128.3**	**117.5**	**54.9**	**66.2**	**1.8**	**-8.4**	**-14.2**	**20.7**
Travel	13.7	9.8	22.0	11.5	5.5	6.8	1.4	-47.7	-54.8	23.1
Transportation	17.2	16.8	24.3	19.8	9.0	14.8	18.3	-18.7	-25.9	64.9
Insurance	1.7	1.8	1.7	2.1	0.9	1.0	-2.9	18.4	19.9	9.6
GNIE*	1.0	0.9	1.1	1.0	0.5	0.4	-0.7	-7.7	-14	-16.6
Software Services	2.7	8.7	8.5	10.3	4.6	5.7	45.5	21.2	15.6	22.4
Business Services	34.4	42.1	46.9	49.5	23.9	24.1	16.0	5.6	4.1	0.9
Financial Services	9.3	4.1	2.9	4.8	2.2	2.6	-16.3	63.2	94.8	19.0
Communication	1.4	1.2	1.3	1.4	0.7	0.6	14.7	11.0	3.2	-11.3
Services Trade Balance	100	100	84.9	88.6	41.8	51.4				
Goods Trade Balance			-157.5	-102.2	-25.8	-75.1				

Source: RBI.
Note: *: Government not included elsewhere

9.22 India's software exports, with a share of 48.5 per cent in total services exports, remained relatively resilient during Covid-19 period with higher demand for digital support, cloud services and infrastructure modernisation catering to the new pandemic challenges. The top software companies have reported average revenue growth rate of above 21 per cent (in $ terms) in H1 2021-22 on account of the increased revenue from their manufacturing, financial, banking and insurance, communication, retail, life sciences and health care segments.

9.23 Until 2019-20, India was net exporter of travel services. However, amid drop in foreign tourist arrivals owing to the mobility restrictions imposed worldwide, travel receipts remained below the pre-pandemic level. In April-September 2021, travel exports were US$ 3.7 billion, which is slightly lower than US$ 4 billion in April-September 2020 and far modest than US$ 14.6 billion during the same period in 2019 (i.e., pre-pandemic period). Growth in receipts from exports of transportation services had moderated to 4.1 per cent due to slowdown in trade activity and supply chain disruptions in 2020-21. However, with resumption in cross-border trade activity and shortage in shipping containers impacting transport costs, the transportation receipts posted growth of 40.7 per cent in H1 2021-22 on a YoY basis (Table 5).

9.24 Among other segments, business services exports increased by 17.1 per cent in H1 2021-22, even surpassing the pre-pandemic levels, mainly on account of rise in receipts relating to professional and management consultancy.

Services imports

9.25 India's services imports exhibited sharper decline of 8.4 per cent in 2020-21 in comparison with services exports primarily on account of fall in travel and transportation payments.

9.26 During H1 2021-22, growth of services imports was 20.7 per cent on account of relaxation in lockdown restrictions and resumption in domestic economic activity. Among the major sectors, payments for overseas travel rose by over 23 per cent in H1 2021-22 on YoY basis; however, it still remained far below its pre-pandemic level. International shortage in shipping vessels has increased the transportation cost, which is evident in escalation of 64.9 per cent in outgo on account of transportation services during April-September 2021. Business services, the largest category in India's import of services, increased by 0.9 per cent in H1 2021-22. The increase in business services payments was due to technical, trade-related, other business services, higher outward remittances for maintenance of offices abroad.

9.27 Despite Covid-19 impacting travel and transport services exports in 2020-21, double digit growth in gross exports of services, aided by exports of software, business and transportation services, resulted in an increase of 22.8 per cent in net exports of services in H1 2021-22.

MAJOR SERVICES: SUB-SECTOR WISE PERFORMANCE AND RECENT POLICIES

9.28 Most sub-sectors of the services sector, particularly, aviation, tourism and port traffic slumped in 2020-21 with the onset of Covid-19 related global shutdown and restrictions in movements. In 2021-22 so far, these sub-sectors have shown signs of recovery, largely reflecting the rebound from same period last year.

9.29 All commercial international flights have been banned since March 2020. This has affected foreign tourist travel and consequently foreign exchange earnings from tourism. Domestic passenger traffic, on the other hand, has seen some signs of recovery. During April-November 2021, 95.6 million passengers travelled, up from 45.2 million during the same period last year. Cargo traffic at ports rose by approximately 10 per cent to 857.3 Million Tonnes (MT) during April-November period of the current fiscal year as compared to 779.2 MT during April-November 2020 (Table 6). This section discusses developments in some key sub-sectors of the services sector in detail.

Table 6: Performance of Key Sub-Sectors in India's Services Sector

Sub-Sector	Indicator	Unit	Year				
			2017-18	2018-19	2019-20	2020-21	2021-22
IT –BPM (excluding e-commerce and Hardware)	IT-BPM revenues	US$ billion	151.4	161.8	174.3	177.9 (E)	-
	Exports	US$ billion	125.1	135.5	146.6	149.1 (E)	-
	Domestic	US$ billion	26.3	26.3	28	28.9 (E)	-
Aviation	Airline passengers	million		344.7	340.9	115.7	106.5#
	Domestic	million		275.2	274.4	105.6	95.6#
	International	million		69.4	66.5	10.1	10.9#
Telecom	Wireless phone subscriptions[a]	million	1,183.4	1,161.8	1157.8	1181	1,180.8##
	Wireless internet subscriptions[a]	million	472.7	582.8	720.8	799.3	810.1##
Tourism	Foreign tourist arrivals[b]	million	10.0	10.6	10.9	2.74###	-
	Foreign exchange earnings from tourism[b]	US$ billion	27.3	28.6	30.1	6.96###	-
Shipping	Gross tonnage of shipping[a]	million tonnes	12.6	12.8	12.7	13	12.96^
	Number of ships[a]	number	1,382	1,405	1,431	1,463	1,488^
Ports	Port traffic	million tonnes	1,208.6	1,277.3	1317.7	1246.1 (P)	857.3#
	Cargo capacity (Major Ports)	million tonnes	1,451.2	1,514.1	1,514.9	1,510.6	-

Sources: Telecom Regulatory Authority of India (TRAI), Department of Telecom, Ministry of Tourism, Ministry of Shipping, Airports Authority of India, Ministry of Electronics and Information Technology, NASSCOM.
Note: a: As of March of ensuing financial year; b: On calendar year basis; #For Apr-Nov 2021 ; ##: As of June 2021; ###: Jan-June 2020; @: As of June 2021; ^As of August 2021. P=Provisional. E= NASSCOM provisional estimates

Tourism Sector

9.30 In normal times, tourism sector is a major contributor to GDP growth, foreign exchange earnings and employment. However, the Covid-19 pandemic has had a debilitating impact on world travel and tourism everywhere, including India.

9.31 According to the World Tourism Barometer of the United Nation's World Tourism Organization (January 2021), International Tourist Arrivals (ITA) declined by 74 per cent globally in 2020 over the previous year, with restrictions on travel, low consumer confidence and a global struggle to contain the Covid-19 spread. ITA had reached a total of 1.5 billion in 2019, and reduced to381 million in 2020, leading to an estimated loss of US$ 1.3 trillion in export revenues. This weakness in international tourism has continued in 2021. During January-September 2021, ITA worldwide was 20 per cent lower than the same period in 2020 and 64 per cent below 2019 levels.

9.32 The resumption of international tourism will continue to depend largely on a coordinated response among countries in terms of travel restrictions, harmonized safety and hygiene protocols and effective communication to help restore consumer confidence. This is particularly critical at a moment when cases are surging in some regions and new Covid-19 variants are emerging in different parts of the world.

9.33 To contain the spread of virus, the Indian airspace regulator, Director General of Civil Aviation (DGCA), had suspended all commercial international flights in March 2020. This restriction has been extended till February 28, 2022. However, special international flights have been operating under the Vande Bharat Mission to help expats fly back home under special diplomatic arrangements (air travel arrangements)[4] with various countries since May 2020. At present, India has transport bubbles with 35 nations[5]. Under this Mission, which is currently in its 15th phase, over 47,000 inbound and outbound flights have been operated as on December 31, 2021, carrying over 63.55 lakh passengers.

9.34 At the time of writing, new restrictions were being introduced worldwide due to the spread Omicron variant of the Covid-19. Thus, the trajectory of tourism sector, especially international tourism remains uncertain.

IT BPM Services

9.34 The Information Technology-Business Process Management (IT-BPM) sector is a major segment of India's services. During 2020-21, according to NASSCOM's provisional estimates, IT-BPM revenues (excluding e-commerce) reached US$ 194 billion, growing by 2.26 per cent YoY, adding 1.38 lakh employees.

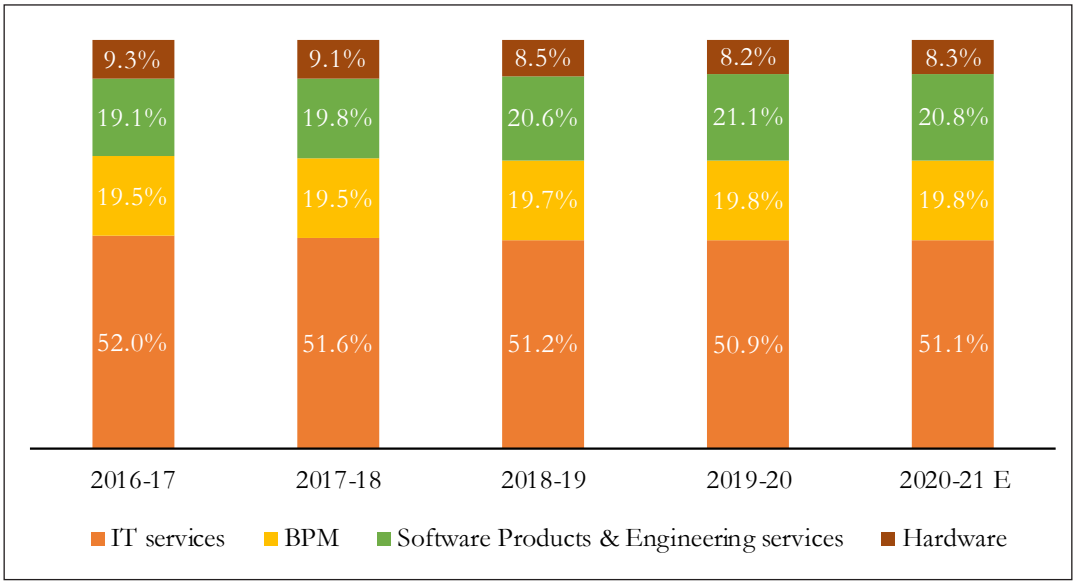
[4]"Transport Bubbles" or "Air Travel Arrangements" are temporary arrangements between two countries aimed at restarting commercial passenger services when regular international flights are suspended as a result of the Covid-19 pandemic. They are reciprocal in nature, meaning airlines from both countries enjoy similar benefits.

[5]Afghanistan, Australia, Bahrain, Bangladesh, Bhutan, Canada, Ethiopia, Finland, France, Germany, Iraq, Japan, Kazakhstan, Kenya, Kuwait, Maldives, Mauritius, Nepal, Netherlands, Nigeria, Oman, Qatar, Russia, Rwanda, Saudi Arabia, Seychelles, Singapore, Sri Lanka, Switzerland, Tanzania, Ukraine, UAE, UK, USA, Uzbekistan.

Share of IT-BPM Sub-sectors

9.36 Within the IT-BPM sector, IT services constitutes the majority share (> 51 per cent) (Figure 5). Its share has been consistent over the last many years. The share of Software & Engineering services in the IT-BPM sector, which was consistently growing each year, saw a slight decline to 20.78 per cent in 2020-21. BPM services share remained same at 19.8 per cent, while that of Hardware services slightly improved to 8.3 per cent. In 2020-21, IT services, Software & Engineering services, BPM services, and Hardware services earned revenues of US$ 99.1 billion, US$ 40.3 billion, US$ 38.5 billion, and US$ 16.1 billion, respectively.

Figure 5: Sub-sectors share in IT-BPM Revenue (excluding hardware & e-commerce)



Source: NASSCOM. Note: E: Estimate.

Share of Exports in IT-BPM Sector

9.37 During 2020-21, the total revenue in IT-BPM sector (excluding hardware and e-commerce) grew at 2.1 per cent (YoY). A significant portion of this revenue comes from exports. During 2020-21, exports revenues grew by 1.93 per cent to reach US$ 149.1 billion (Table 7).

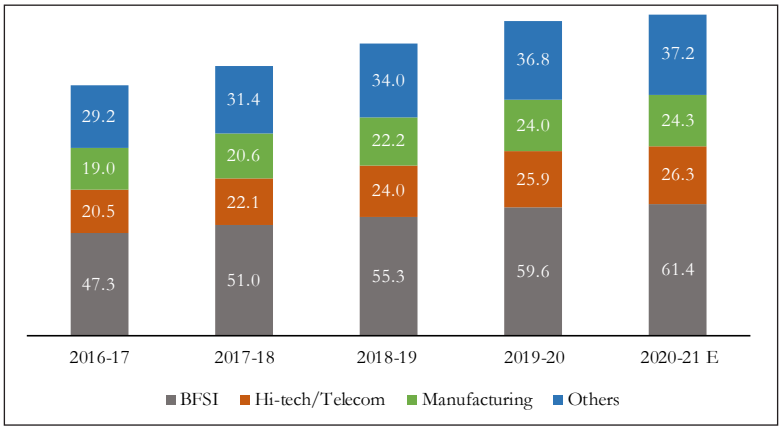
Table 7: Exports and Domestic Market Size of Indian IT-BPM Industry (excluding hardware & e-commerce)

Year	Revenue (US$ billion)			Percentage growth (YoY)		
	Domestic	Exports	Total	Domestic	Exports	Total
2016-17	23.8	116.1	139.9	10.45	7.64	8.11
2017-18	26.3	125.1	151.4	10.44	7.77	8.22
2018-19	26.3	135.5	161.8	-0.27	8.34	6.84
2019-20	28.0	146.3	174.3	6.70	7.93	7.73
2020-21E	28.9	149.1	177.9	3.01	1.93	2.11

Source: NASSCOM. Note: E: Estimate.

9.38 Out of the total US$ 149.1 billion in exports of the IT-BPM sector (excluding hardware and e-commerce) in 2020-21, Banking, Financial services and Insurance (BFSI) contributed US$ 61.4 billion, accounting for over 41 per cent of the exports. Hi-tech/Telecom and Manufacturing services contributed US$ 26.3 billion and US$ 24.3 billion, accounting for a share of 17.65 and 16.28 per cent respectively (Figure 6). All the three sub-sectors witnessed a marginal increase in export revenues in 2020-21 YoY, with BFSI growing by 3 per cent, Hi-tech/Telecom services by 2 per cent and Manufacturing services by 1 per cent.

Figure 6: Sector wise break up of Indian IT BPM Export Revenues (excluding hardware & e-commerce) (US$ billion)

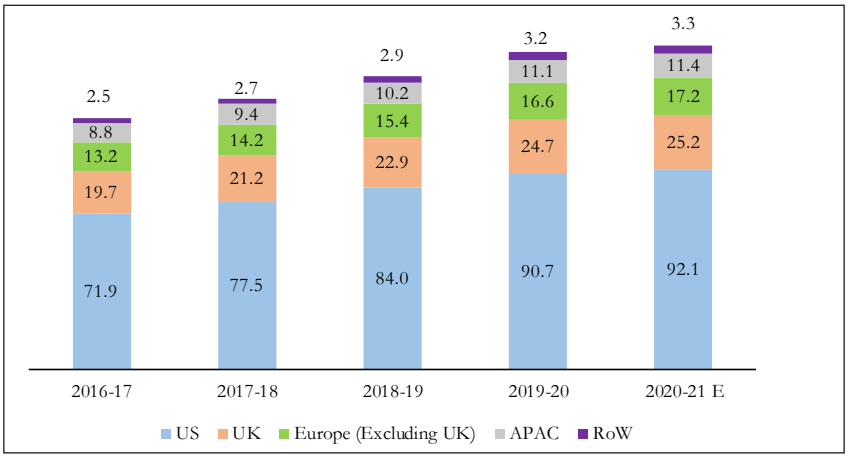


Source: NASSCOM. Note: E: Estimate.
Note: Others include emerging sectors like Retail, Healthcare, Media etc.

Distribution of export revenues

9.39 United States remained the biggest source of exports revenues amounting US$ 92.1 billion in 2020-21(Figure 7). This accounts for about 62 per cent of total IT-BPM exports (excluding hardware and e-commerce). This is followed by UK, which is second largest export market for IT-BPM services with a share of around 17 per cent. The revenue from exports to UK amounted to US$ 25.2 billion in 2020-21. Europe (excluding UK) and Asia-Pacific account for 11.5 per cent and 7.7 per cent respectively of the export earnings of India.

Figure 7: Geographic Break-up of India's IT-BPM Exports (excluding hardware & e-commerce) (US $ billion)



Source: NASSCOM. Note: E: Estimate.

9.40 Over the last year, a number of policy initiatives have been undertaken to drive innovation and technology adoption in the sector, including relaxation of Other Service Provider regulations (See Box 1), Telecom Sector Reforms and Consumer Protection (e-commerce) Rules, 2020. This would significantly expand access to talent, increase job creation, and catapult the sector to the next level of growth and innovation.

Box 1: Removal of Telecom Regulations in IT-BPO Sector

Last year, the Government undertook a major reform of liberalizing the Telecom regulations in the IT-BPO sector. In legal parlance, these are called Other Service Providers (OSPs). New revised and simplified OSP guidelines were first issued in November 2020 and further in June 2021. Prior to this, the OSPs were regulated under the Revised Terms and Conditions- Other Service Provider 2008.

IT and IT enabled service companies carrying out services like tele-medicine, e-commerce, call centre, network operation centre and other IT Enabled Services, by using Telecom Resources provided by Authorised Telecom Service Providers were required to be registered as Other Service Provider (OSP) and comply with the onerous obligations of the OSP Regulations. The application and approval processes were cumbersome and compliance obligations such as in relation to the sharing of infrastructure, work from home arrangements, use of EPABX and internet connectivity, etc. were tedious and made compliance challenging.

The revised guidelines which resolve these issues are as follows:

- Clear definition of OSP: The applicability of new guidelines is limited to entities that provide "Voice based BPO services" to its customers. Voice based BPO services is defined to mean call center services. The new guidelines have explicitly clarified that non-voice-based entities will not be governed by the OSP regime.
- Removal of registration requirement No registration certificate will be required for OSP centres in India.
- Removal of requirement of bank guarantee: No bank guarantee whatsoever will be required for any facility or dispensation under these guidelines.
- Removal of distinction between domestic and international OSPs: The categorization of OSPs has been done away with and one single OSP category has been introduced regardless of their domestic/ international business operations.
- Work from home and remote locations allowed: The agents at home/anywhere shall be treated as remote agents of the OSP centre. The interconnection between remote agents is permitted using any technology including broadband over wireline/wireless. The remote agent can now directly connect to customer Electronic Private Automatic Branch Exchange (EPABX) /centralised EPABX without the need to connect with the OSP centre.
- Interconnectivity between OSPs allowed: Interconnection between two or more OSP centres of the same or unrelated company is now permitted.
- Sharing the infrastructure: Infrastructure sharing among OSPs is now allowed. The guidelines allow the use of EPABX at foreign locations.

This reform will provide a big stimulus for growth of IT-BPO industry in India and help in creating more income and employment.

NASSCOM undertook a survey between October to November 2021 to assess the impact of OSP reforms on IT-BPM Sector. Its findings are as follows:

- 92 per cent of the participants stated that the OSP reforms have helped reduce compliance burden. While 28 per cent of the participants responded that their compliance burden reduced by more than 50 per cent, 20 per cent of participants acknowledged compliance reduced by 40-50 per cent. 15 per cent of participants responded that compliance reduction by 30-40 per cent (Figure 1A).
- 24 per cent of the respondents expect that OSP reforms will help in generating new employment opportunities, 10 per cent expect that it will reduce the cost of doing business in India, whereas 64 per cent expect all these benefits to accrue (Figure 1B).
- Further, 83 per cent of the participants responded that these reforms will help in reducing the financial burden; 24 per cent of the respondents stated that these reforms have significantly enhanced productivity of their organization; and 94 per cent said that these reforms will increase competitiveness globally.

Figure 1A: Reduction in compliance burden?

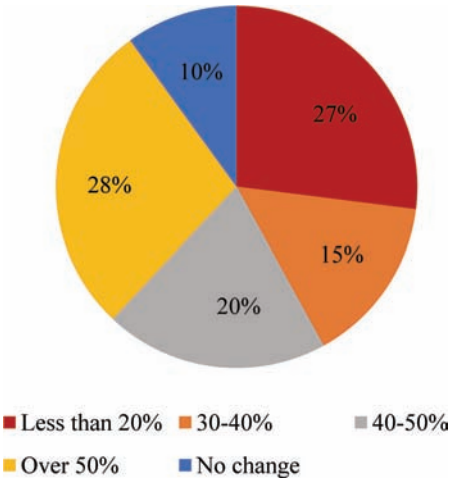
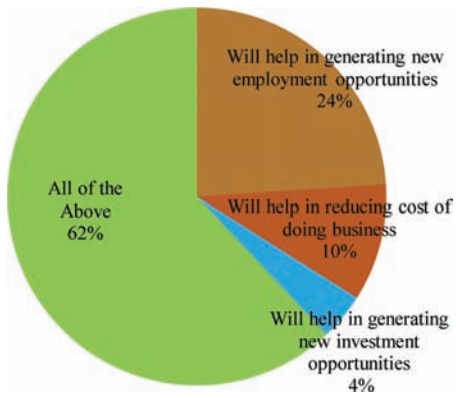


Figure 1B: OSP Reforms: Positive impact on the industry


Will help in generating new employment opportunities 24%
All of the Above 62%
Will help in reducing cost of doing business 10%
Will help in generating new investment opportunities 4%

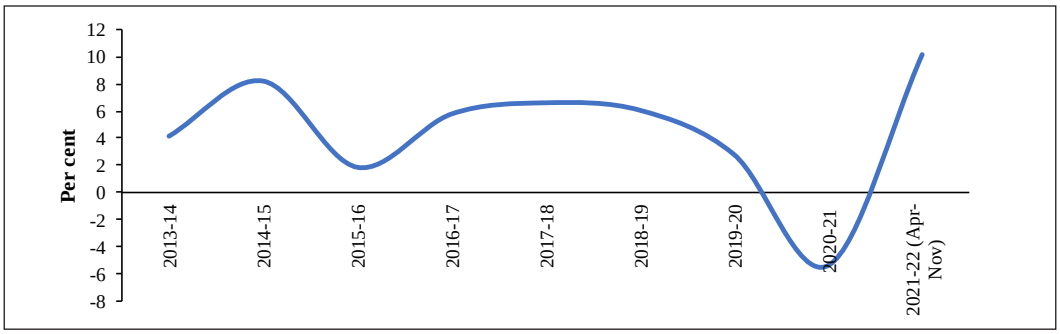
- Almost all participants were satisfied with the work from home/work from anywhere relaxations'.
- Over 62 per cent of the respondents indicate that they will increase their employment by 5-10 per cent annually over the next 5 years; and around 50 per cent of the respondents indicated expanding into new locations.

Ports, Shipping and Waterways Services

9.41 Development of ports is crucial for the economy. Ports handle around 90 per cent of export-import cargo by volume and 70 per cent by value in India. The total cargo capacity of all the ports has increased to 1,246.86 Million Tonnes Per Annum (MTPA) as of March 2021 from 1,052.23 MTPA as of March 2014.

9.42 Hit by disruptions caused by Covid-19, cargo traffic at India's ports decreased by 5.4 per cent during 2020-21, to 1,246.86 MT from 1,317.73 MT during 2019-20. Port traffic has picked up in 2021-22 so far, registering a growth of 10.16 per cent during April-November 2021 over the same period last year (Figure 8). During the first eight months of 2021-22, ports handled total traffic of around 858.3 MT, as compared to 779.2 MT in the corresponding period of previous year.

Figure 8: Growth (YoY) in traffic at all ports



Source: Ministry of Ports, Shipping and Waterways

9.43 Major ports handled traffic of around 465.4 million tonnes during April-November 2021, growing by 12 per cent over same period last year. Almost all major ports (except SMP Kolkata, Vizag and Mormugoa ports) recorded high growth in traffic, partly reflecting a rebound from the low base during the same time last year. Kamarajar Port in Chennai recorded highest growth of 70.9 per cent followed by JNPT Port at 27.9 per cent. Deendayal Port handled the maximum Cargo of 85.12 MT during April-November 2021.

9.44 A key indicator of efficiency of the ports sector is the shipping Turnaround Time (TRT). Over the last seven years, TRT at major ports has declined consistently from almost 3.64 days in 2015-16 to 2.25 days in 2021 (April-December). The turnaround time is now the lowest at the JNPT port (1.16 days) and the highest at the Visakhapatnam and Mormugao ports (Table 8). Kamarajar port has shown biggest improvement in reducing average turnaround time from over 6.5 days in 2015-16 to less than 2 days in 2021-22 (April-December).

9.45 According to UNCTAD, the median ship turnaround time globally was 1 day in 2020. This is slightly higher than the year 2019 where the turnaround time was 0.97 days. During 2020, to contain the virus, terminal operators, authorities, and intermodal transport providers took steps to reduce social contact. This slowed port operations, thereby increasing the time spent by vessels on port.

Table 8: Average Ships' Turnaround Time at Major Indian Ports (in days)

PORT	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21@	2021-22 (Apr- Dec)
Kolkata	3.98	4.73	4.11	3.84	4.21	3.18	2.87#
Haldia	3.27	3.45	3.76	3.04	3.62	3.09	2.46#
Paradip	4.50	4.99	3.31	2.51	2.98	2.42	2.28
Visakhapatnam	3.84	3.75	2.58	2.51	2.48	2.75	3.15
Kamarajar (Ennore)	6.53	2.70	2.20	1.97	1.85	1.79	1.95
Chennai	2.53	2.51	2.21	1.98	2.00	2.14	2.24
V.O. Chidambaranar	3.73	4.40	2.69	1.96	2.01	1.92	2.02

Cochin	2.18	1.99	1.54	1.47	1.51	1.49	1.44
New Mangalore	2.63	2.35	2.04	1.93	1.91	1.91	1.94
Mormugao	3.65	4.51	2.63	2.63	2.69	3.15	3.15
Mumbai	4.61	3.27	3.72	2.52	2.56	2.46	3.10
JNPT	2.44	2.01	2.24	2.13	2.00	1.19	1.16
Deendayal (Kandla)	4.66	4.40	2.51	3.01	2.94	2.83	2.48
All Major Ports	**3.64**	**3.43**	**2.68**	**2.48**	**2.59**	**2.33**	**2.25**

Source: Ministry of Ports, Shipping and Waterways
Note: @: Average Turnaround time during 2020-21 is based on Pilot boarding till de-boarding
#: Turnaround time calculated as per prevailing modified formula (lock to lock)

9.46 The Covid-19 pandemic related restrictions on international trade in 2020 have led to a smaller flow of containers in active shipping. The prolonged partial closure of ports across the world created a glut of containers in some ports and abject shortage in others. At the same time, because of widespread manufacturing delays, not enough containers were manufactured. As the global economy began to recover since early 2021, the containers which were stuck at various storage points are not being sent back into service fast enough. This has resulted in a skewed demand-supply for shipping containers, leading to very high shipping rates. During April-September 2021, India spent US$ 14.8 billion on transportation services imports, which is 64.9 per cent higher than last year.

9.47 To address the problem of shortage of containers and high freight rates, the Government has adopted a multi-pronged strategy. This includes pressing additional shipping/container capacity into service through measures such as higher import of empty containers, improved operational planning by facilitating close coordination between exporters and shipping lines, release of abandoned/detained/seized containers, increasing duty free stay of containers. Further measures include freight discounts for empty repositioning by railways, measures to improve the turnaround times of containers through tracking and monitoring of dwell times so as to effectively enhance availability of containers, promoting use of bulk/break-bulk movement by exporters wherever feasible.

Sagarmala Programme

9.48 The Sagarmala programme is the flagship progamme of the Ministry of Ports, Shipping and Waterways to promote port-led development in the country by taking advantage of India's 7,500 km long coastline, 14,500 km long potentially navigable waterways and the strategic location on major maritime trade routes. The core vision of the Sagarmala programme is to reduce the logistics cost for export, import and domestic trade. Presently, a total of 802 projects worth Rs. 5.53 lakh crore are part of Sagarmala Programme. Of these, 181 projects worth Rs. 94,712 crore have been completed and 398 projects worth Rs. 2.48 lakh crore are under various stages of implementation.

Space Sector

9.49 Since its inception in the 1960s, the Indian space program has grown drastically. Administered by the Department of Space (DOS) and primarily executed by its R&D arm, the Indian Space Research Organization (ISRO), capabilities have been developed in the space sector across all domains. This includes indigenous space transportation systems; space assets comprising of fleet of satellites catering to the needs of earth observation, satellite communication, meteorology, space science & navigation; ground infrastructure and a host of operational programs related to the applications of space technology to the common uses of the society.

9.50 Across the globe, the trend of space activities is in a state of transition. From being primarily a government driven activity, the sector has been witnessing increasing participation of private sector – not only in the traditional vendor role but also in taking up end-to-end space activities. With this in mind, Government undertook reforms in space sector in 2020, which envisage the private sector to act as a co-traveler in the exploration of outer space and also in providing space-based services.

9.51 As a part of these reforms, the first step taken was empowering New Space India Limited (NSIL)-the Public Sector Undertaking (PSU) in this sector –to "own" the operational launch vehicles and space assets of ISRO. Further, the present supply-based model was changed to demand-driven model, wherein NSIL shall act as aggregator of user requirements and obtain commitments. The first outcome in this regard came recently to the fore with Tata Sky signing an MoU with NSIL for utilizing the capacity on board the upcoming communication satellite GSAT-24, to be built by ISRO and launched by Arianespace.

9.52 The second important step was the creation of an independent nodal agency under the Department of Space, Indian National Space Promotion and Authorization Centre (IN-SPACe), which shall act as the promotor and regulator of space activities in India by NGPEs (Non-government/private entities). This body has been tasked with prioritising the launch manifest as per the requirements of NSIL, ISRO and NGPEs. It shall also allow utilization of capital intensive DOS-owned facilities at reasonable cost by the private sector. In a little over a year since the agency was announced, the interim IN-SPACe board has received close to 40 proposals from large industries, MSMEs, start-ups and academia covering broad range of activities in space domain – cutting across both upstream (launch vehicle/satellite manufacturing) as well as downstream (Earth Observation applications, communications, etc.)

9.53 The third vital step has been in providing a predictable, forward-looking, well defined and enabling regulatory regime for space activities in the country. The first to be updated were the SpaceCom and SpaceRS policies, further liberalizing the traditional Satellite Communication and Remote Sensing sectors, respectively, thus enabling entrepreneurs/industries to take up end-to-end activities in these domains.

9.54 These initiatives have been received with much zeal and vigor by the entrepreneurs. Five private satellites have been tested at ISRO facilities, four student satellites were launched aboard the PSLV C-51. The national registration mechanism for space objects has been implemented, with five satellites registered. A total of six MoUs have been signed with private/academic entities for sharing technical expertise and facilities.

9.55 Trends in the number of start-ups engaged in the space sector also show the pace of growth of space sector in India (Table 9). Just in the last three years number of startups in the space sector has increased from 11 in 2019 to 47 in 2021.

Table 9: Number of Start-ups in Space Sector

Year	No of start-ups
2012	1
2013	1
2014	1
2015	3
2016	1
2017	8
2018	7
2019	11
2020	21
2021	47
Total	**101**

Source: ISRO

Note: ISRO/DOS doesn't register any start-ups. However, start-ups are registered with startupindia under DPIIT. Around 75 start-ups are shown under space technology category in the startupindia portal. But these numbers are not exhaustive, as some of the start-ups registered under other categories are also involved in the space domain.

9.56 With these recently undertaken policy initiatives and private sector participations, the Indian space sector is expected to capture a larger share of the global space economy, which was close to US$ 447 billion in 2020. At present, India accounts for only about 2 per cent of the space economy, much behind the major players – USA and China.

Box 2: Drone Rules, 2021

In March 2021, the Ministry of Civil Aviation (MoCA) published the UAS Rules, 2021. These Rules were considered too stringent and restrictive as they involved considerable paperwork, required permissions for every drone flight and very few "free to fly" green zones were available. Based on the feedback, the Government decided to repeal the Unmanned Aircraft Systems (UAS) Rules, 2021 and replace the same with the liberalised Drone Rules, 2021, which was notified on 25th August 2021. Key features of Drone Rules 2021 include:

- **Several approvals abolished; with the total forms to be filled reduced from 25 to 5:** Various approvals such as unique authorisation number, unique prototype identification number, certificate of manufacturing, and operator permit etc. have been done away with. Certain exemptions have also been introduced for nano/micro drones.

Figure 3A: Approvals abolished under the new Drone Rules 2021

Source: PIB

- **Type of fees reduced from 72 to 4;** further the quantum of fees to be paid reduced considerably and delinked with the size of drone. For instance, the fee for a remote pilot license fee has been reduced from Rs 3000 (for large drone) to Rs 100 for all categories of drones.
- **Extended applicability of rules:** Drones up to 500 kg are now subject to regulations, compared to the earlier limit of 300 kg. This brings drone taxis and heavy payload-carrying drones within the ambit of the rules. For drones with weight more than 500 kg, the provisions of the Aircraft Rules 1937 shall apply.
- **Simplified and accessible certification process:** A Digital Sky platform is being developed as a single-window platform for one-step and one-time clearances for drone ownership and operation. Manufacturers and importers may generate their drones' unique identification number on the digital sky platform through self-certification.
- **Prior security clearance removed**
- **Expanded area of drone operations:** An interactive map on the Digital Sky platform specifies colour-coded zones on the map i.e. green, yellow and red, indicating free zones, those which require prior permission, and no-fly zones, respectively. The perimeters of these zones have also been liberalised to increase freely accessible airspace under the green category. This map will be made accessible through a machine-readable Application Programming Interface.
- **Relaxations on foreign companies:** Foreign-owned and controlled Indian companies can conduct drone operations in India. Import of drones will be regulated by Directorate General of Foreign Trade (DGFT).
- **No remote pilot licence required** for micro drones (for non-commercial use) and nano drones. Remote pilot licence will be issued by Director General of Civil Aviation (DGCA) within 15 days of pilot receiving the remote pilot certificate from the authorised drone school through the digital sky platform.
- **Relaxations for Research and Development (R&D):** Requirements such as type certification have been removed for drone manufacturers conducting R&D in premises located in green zone.
- **Reduced penalties:** The maximum penalty under new rules has been reduced from Rs 5 lakhs to Rs 1 lakh.

Box 3: Revised Guidelines for Acquiring and Producing Geospatial Data

On 15th February 2021 the Department of Science and Technology released guidelines for the creation, acquisition and use of geospatial data, including maps. Being critical to mapping activities in India, geospatial data was previously heavily regulated and required licenses to be obtained for the use of such data. Given the increase in freely and publicly available geospatial data and services, the erstwhile restrictions had become redundant and severely hampered technological innovation in the sector, which specifically affected domestic players. The newly released guidelines aim to build a more permissive regime which opens up the industry to collaboration and progress, while supporting Indian companies operating in this sector.

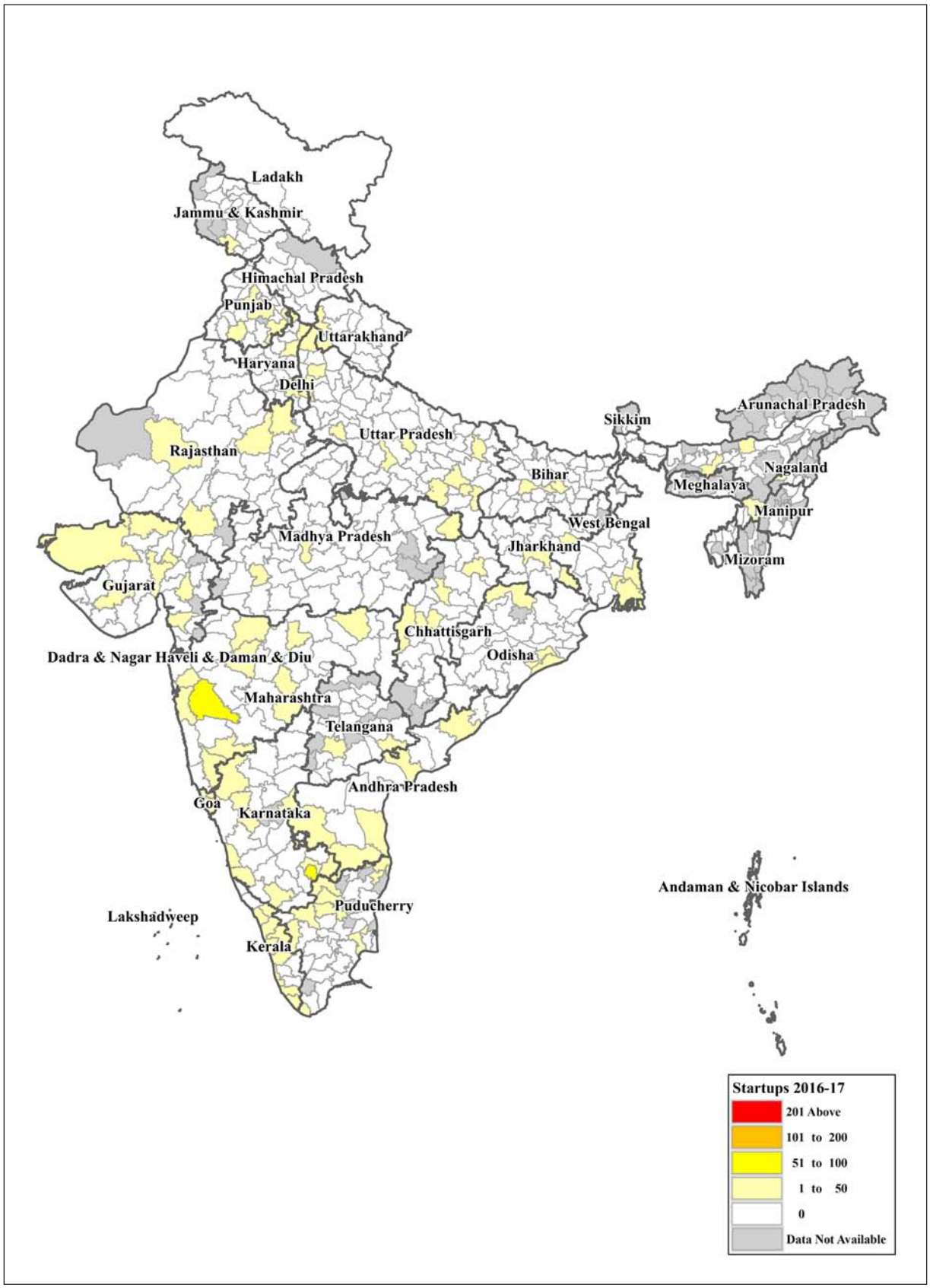
Some key changes under the guidelines are as follows:

- **Introduction of a self-certification regime:** All entities are now required to follow a self-certification process to show adherence to the guidelines, as opposed to obtaining prior approval or licenses for the use of geospatial data and maps.
- **Relaxation of restricted areas:** Mapping activities are prohibited only for specific attributes of highly sensitive locations, as opposed to restricted areas under the previous regime.
- **Specific permissibility for Indian Entities:** Only Indian owned and controlled entities are permitted to (i) use geospatial data above a certain special accuracy; (ii) use specific technologies such as ground truthing and verification; and (iii) conduct activities such as street view surveying and surveying in Indian territorial waters. While non-Indian companies are not permitted to undertake any of the above, they can license this data from Indian entities through the use of APIs, only for the purposes of serving their Indian customers,
- **Relaxation on export restrictions:** The guidelines permit the export of maps with resolutions up to a 1:100 resolution thereby relaxing the previous threshold of 1:250000. Maps which are finer than the specified resolution threshold must be localised, and are only permitted to be stored and processed on servers located within India.
- **Open access to publicly funded data:** The guidelines require all geospatial data produced using public funds, including data produced by the Survey of India, to be freely accessible to all Indian entities, for scientific, economic and developmental purposes. Certain categories of classified geospatial data will been exempted from this requirement.

Startups

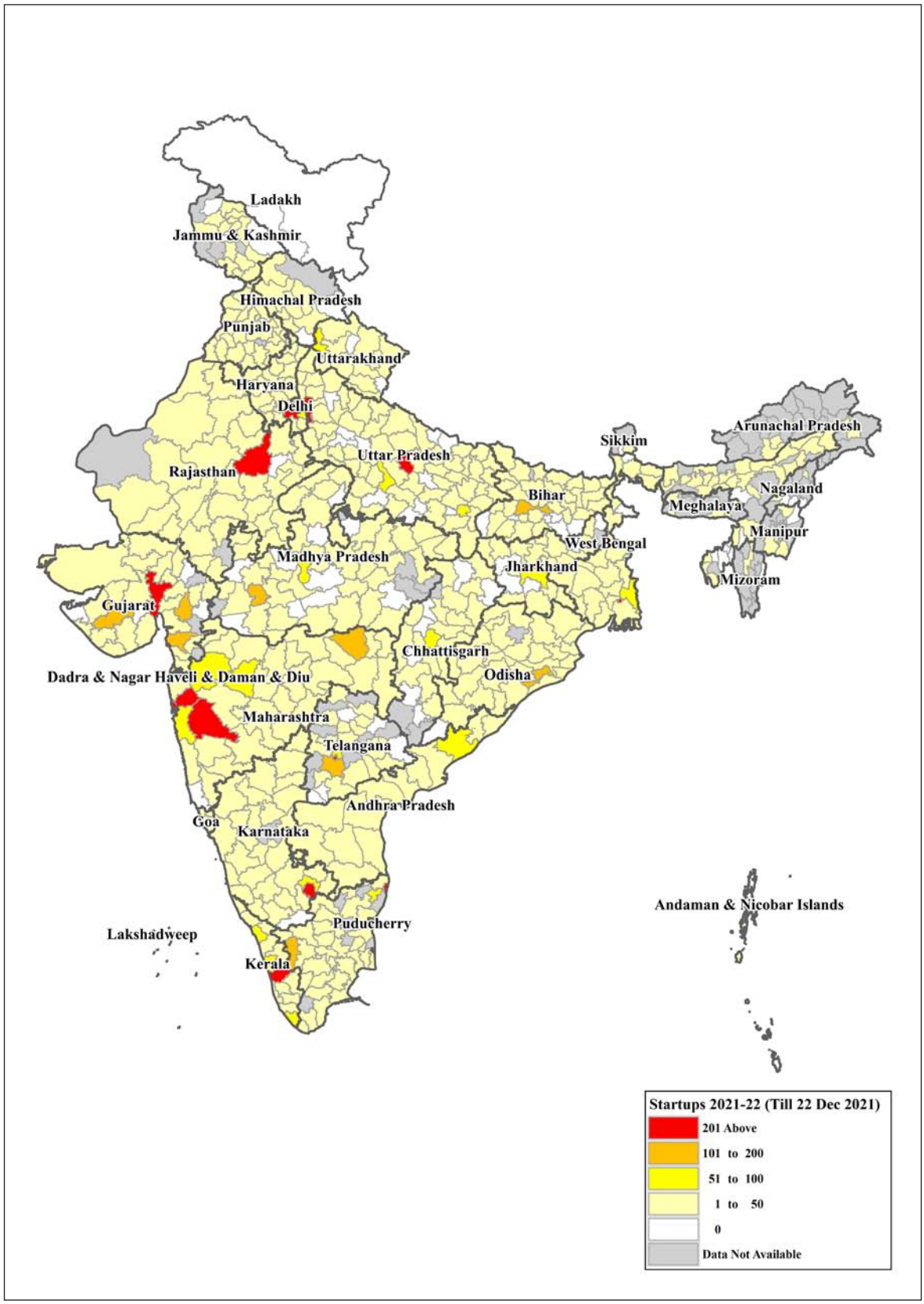
9.57 Startups in India have grown remarkably over the last six years, most of these belong to the services sector. During 2021, the Government recognised over 14,000 new startups as compared to only, only 733 new startups during 2016-17. As a result, more than 61,400 startups have been recognised in India as of January 10, 2022. Figure 9 &Figure 10 show the spread of startups in Indian districts. During 2021, 555 districts had atleast one new startup. On the other hand, only 121 districts had atleast 1 new startup in 2016-17.

Figure 9: New Startups recognised in 2016-17



Source: DPIIT

Figure 10: New Startups recognised in 2021-22*



Source: DPIIT
*As on 22nd December 2021

9.58 Over the recent years, Delhi has replaced Bangalore as the startup capital of India. Over 5,000 recognised startups were added in Delhi while 4,514 startups were added in Bangalore between April 2019 to December 2021. With a total of 11,308 startups, Maharashtra has the highest number of recognised startups.

9.59 India had a record number of start-ups (44) reach unicorn status in 2021. It overtook UK to emerge as the third highest country in number of unicorns after US and China which added 487 and 301 unicorns respectively in 2021. As of January 14, 2022, India has 83 unicorns with a total valuation of US$ 277.77 billion.

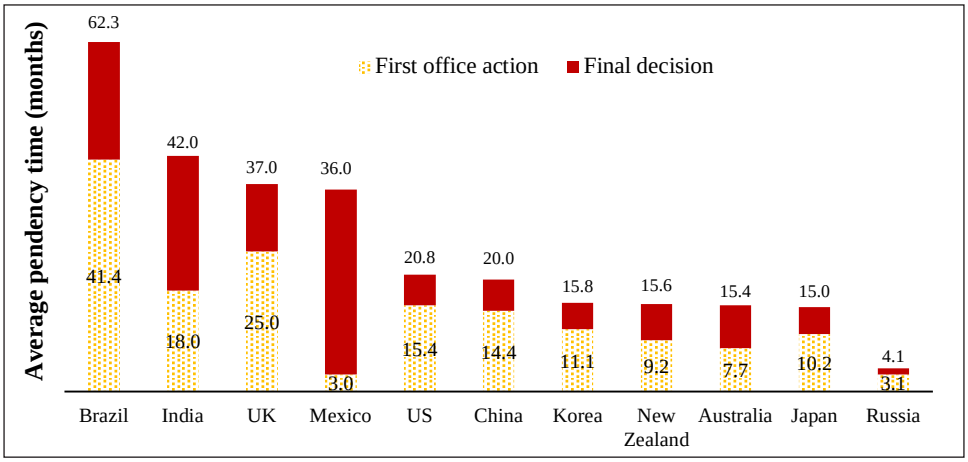
Patents

9.60 Most of India's startups are in the IT/ knowledge-based sector. Intellectual property, specifically patents are key to this knowledge-based economy. There has been gradual increase in the filing and granting of patents in India. The number of patents filed in India has gone up from 39,400 in 2010-11 to 45,444 in 2016-17 to 58,502 in 2020-21 and the patents granted in India has gone up from 7,509 to 9,847 to 28,391 during the same time period. Further, the number of patents application are increasingly coming from Indian residents rather than MNCs. The share of Indian residents in total applications has increased from 20 per cent in 2010-11 to around 30 per cent in 2016-17 and 40 per cent in 2020-21. Consequently, India's ranking in Global Innovation Index has climbed 35 ranks, from 81st in 2015-16 to 46th in 2021.

9.61 This is a remarkable progress, but the number of patents granted in India is still a fraction compared to patents granted in China, USA, Japan, and Korea. According to World Intellectual Property Organization (WIPO), the number of patents granted in China, USA, Japan, Korea stood at 5.30 lakh, 3.52 lakh, 1.79 lakh, 1.35 lakh respectively for 2020.

9.62 One of the key reasons for relatively low patents in India vis a vis USA, China, etc is India's low expenditure on Research and Development (R&D) activities, which was 0.7 per cent of its GDP in 2020. However, this is not the only reason. The procedural delays and complexity of the process is another cause for low patents in India. The average pendency for final decision in acquiring patents in India is 42 months as of 2020. This is much higher than 20.8, 20, 15.8 and 15 months respectively for USA, China, Korea and Japan (Figure 11). Note that average pendency for final decision in acquiring patents has reduced in India from 64 months in 2017 to 52 months in 2019 and further to 42 months in 2020. Box 4 shows the step-by-step procedure followed in patent application and compares the prescribed time limit with actual time taken.

Figure 11: Average Pendency times for final decision in 2020



Source: World Intellectual Property Indicators, 2021

Box 4: Patent application procedure in India

	Application stages	Prescribed time limit	Actual time taken and issue
Once the patent application is filed, a request for examination can be filed anytime within 48 months from the date of filing, although it is usually filed along with the application.			
1.	**Publication:** Once the application has been filed, it is published by the Controller.	**18 months** The reason for granting this amount of time is to allow the applicant time to withdraw it.	**18 months** from the date of filing.
2.	**Reference to an Examiner:** Examiners are officers appointed by the Controller to conduct a formal as well as a substantive examination of the invention.	**1 month** from the date of publication.	The entire process usually takes **12 months**. Delays occur at the stage of appointment of the examiner. This is primarily due to the lack of examiners qualified to examine patents in different sectors, thereby creating a backlog.
3.	**First Examination Report:** The examiner must submit an examination report to the Controller, after which the First Examination Report (FER) is issued by the Controller to the applicant.	**3-5 months** The Examiner must submit the FER to the Controller within 1-3 months from the date of receipt. The Controller must then issue the FER to the applicant within 2 months.	
After the FER has been issued, the applicant has 6 months to provide its responses.to the Controller.			
4.	**Hearing:** Controller must notify and conduct a hearing to determine the validity of responses to the FER and any outstanding objections which may not have been adequately addressed by the applicant.	**No time limit has been prescribed for the completion of this step**	The hearing is usually completed within **6-9 months** from the date of receiving responses to the FER.
After the hearing, the applicant must submit written submissions and the relevant documents (including any additional information, explanations, evidence and amendments required pursuant to the hearing) within fifteen days from the date of hearing.			

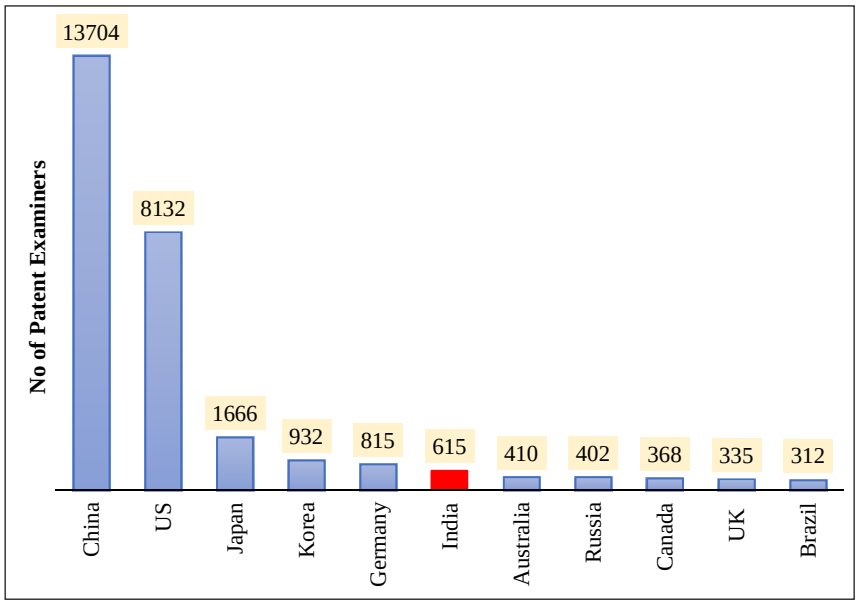
5.	**Pre-grant Opposition:** The Controller notifies the applicant of any oppositions received in relation to the application	**No time limit has been prescribed for the completion of this step.** To allow for objections, a minimum of **6 months** is provided subsequent to publication before a patent is granted.	Notification is typically provided **immediately**.
After details of the pre-grant opposition have been notified, the applicant is required to submit a reply statement accompanied by appropriate evidence within three months from the date of notice. After submission of the reply the Patent Office needs to take the following steps.			
6.	**Opposition Hearing:** The Controller after hearing the parties (if requested) considers the evidence and takes a decision as to the validity of the opposition	**1 month** from the completion of proceedings	Typically, this takes around **3-4 months.**
7.	**Grant:** The patent is granted and published once (i) all FER responses are accepted and (ii) no pre-grant oppositions are pending	**No time limit prescribed for the completion of this step**	**4-6 months** from the completion of all proceedings. Where there is no hearing, grants are typically issued **within 12 months** from the date of submission of responses to the FER

Source: Survey Estimates

9.63 Box 4 and Figure 11 show that the time taken for the first step, i.e. publishing the application by the controller is currently 18 months in India, as compared to 15.4, 14.4, 11.1, 10.2 months respectively in US, China, Korea and Japan. In order to reduce the time taken in the application process of patents, prescribed time limits for the first stelp may be reduced to 14-15 months bringing it in line with US and China.

9.64 Secondly, delay in India's patent application is also due to the low number of patent examiners in India. The number of patent examiners in India in 2020 were 615 as opposed to 13,704 in China, 8,132 in United States and 1,666 in Japan (Figure 12). This leads to huge delay in receiving First Examination Report (FER) delaying the whole process. This was also noted by the Parliamentary Standing Committee on Commerce's Review of Intellectual Property Rights Regime in India (2021). Hence, there is an urgent need to increase the number of patent examiners.

Figure 12: Number of patent examiners in 2020



Source: World Intellectual Property Indicators, 2021

9.65 Another issue which leads to delays in the process is that there is no time limit prescribed in the statute for controller to conduct a hearing to determine the validity of responses to the FER and any outstanding objections which may not have been adequately addressed by the applicant. It was found that this usually takes about 6-9 months. Additionally, the decision after the opposition hearing by the controller which should usually happen in 1 month typically takes about 3-4 months. Therefore, a fixed timeline for grant after the opposition hearing should be put in place.

10 CHAPTER

Social Infrastructure and Employment

During the last two years, as India along with rest of the world faced the onslaught of the pandemic, Government's key focus in India remained on providing a safety-net to the vulnerable segments of society as well as providing a coherent response to the health consequences of the pandemic. India having already faced two COVID-19 waves, with the first peak in September 2020 and the second peak in May 2021, is currently facing the third wave led by the Omicron variant. Indian National COVID Vaccination Program, one of the world's largest vaccination programs, has not only supported production of COVID-vaccines domestically, but it has also ensured free vaccines to its population - world's second largest population. Union Budget for 2021-22 allocated ₹ 35,000 crore for procurement of vaccines under COVID-19 Vaccination Program. From 16th January, 2021, as on 16th January 2022, a total of 156.76 crore doses of COVID-19 vaccines, have been administered: 90.75 crore first dose and 65.58 crore second dose. With these, 93 percent of 18 year and above aged persons have been vaccinated with first dose and about 70 percent with second dose. Vaccination at this scale and speed has enabled swift revival of livelihoods.

As per quarterly Periodic Labour Force Survey (PLFS) data, up to March 2021, employment in urban sector affected by the pandemic has recovered almost to the pre-pandemic levels. Employees Provident Fund Organisation (EPFO) data suggests, that not only formalisation of jobs continued during second-COVID-19-wave, but its adverse impact by far on formalization of jobs was also much lower than during the first-COVID-wave. To provide the necessary buffer for the unorganized labour in rural areas during the pandemic, allocation of funds to Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) has been increased.

As per the latest available data, school infrastructure – both in terms of number of recognized schools & colleges and basic facilities in schools – and teachers' availability reflected in Pupil Teacher Ratio, showed an improvement in 2019-20 over earlier years. Year 2019-20, also witnessed improvement in enrolments rates across upper-primary, secondary, and higher secondary and improvement in dropout rates at all levels. Gross enrolment ratio in higher education recorded at 27.1 percent in 2019-20, was slightly higher from 26.3 percent in 2018-19. Government has undertaken multiple initiatives aimed at revolutionizing the higher education ecosystem by (i) enabling higher vocationalisation, (ii) greater multi-disciplinary research, (iii) providing multiple entry

and exit points, (iv) promoting globalisation of education, (v) leveraging the potential of Information and Communication Technology (ICT) in teaching and learning process for all learners.

The latest National Family Health Survey-5 showed encouraging outcomes of Government programmes in the health and other social sectors. Total fertility rate (TFR) has come down from 2.2 in 2015-16 to 2 in 2019-21. Significant improvement is seen in the health infrastructure and services reaching the public. Under the Jal Jeevan Mission (JJM), 83 districts in the country have already become 'Har Ghar Jal' districts. Government addressed the unprecedented challenges posed by the pandemic, by not only intensifying the delivery and outreach of existing programmes, but also supplementing these by various well targeted and timely new interventions. Consequently, Government spending on social services increased significantly during the pandemic, recording an increase of 9.8 percent over 2020-21.

INTRODUCTION

10.1 The need for a strong and resilient social infrastructure became even more important during the ongoing COVID-19 pandemic that brought into focus the vulnerabilities in social infrastructure across countries. Specifically, pandemic posed the challenge of balancing livelihoods while saving lives. To save lives and livelihoods amidst the COVID-crises, countries have adopted various strategies. India, the country with the second largest population and a large elderly population, adopted a multi-pronged approach. Given the nature of pandemic, the health response including vaccination strategy remained critical. India, one of the young nations in the world, also faced the challenge to sustain the learning outcomes in schools, building skills and reskilling population, employment and livelihood to one of the largest labour forces in the world. Government's response through 'Aatma Nirbhar Bharat Abhiyan' packages and other sector specific initiatives have provided the necessary support to mitigate the adverse impact of pandemic.

10.2 This chapter gives a brief account of India's health response to the pandemic, states the facts on social services expenditure, reviews education infrastructure and outcomes, lists effort of skill development, examines trends in employment, takes stock of efforts made to increase health services, and examines longer term health trends using latest National Family Health Survey (NFHS)-5 2019-21 data, while also reviewing drinking water and sanitation access, and gives status of rural housing access in the country.

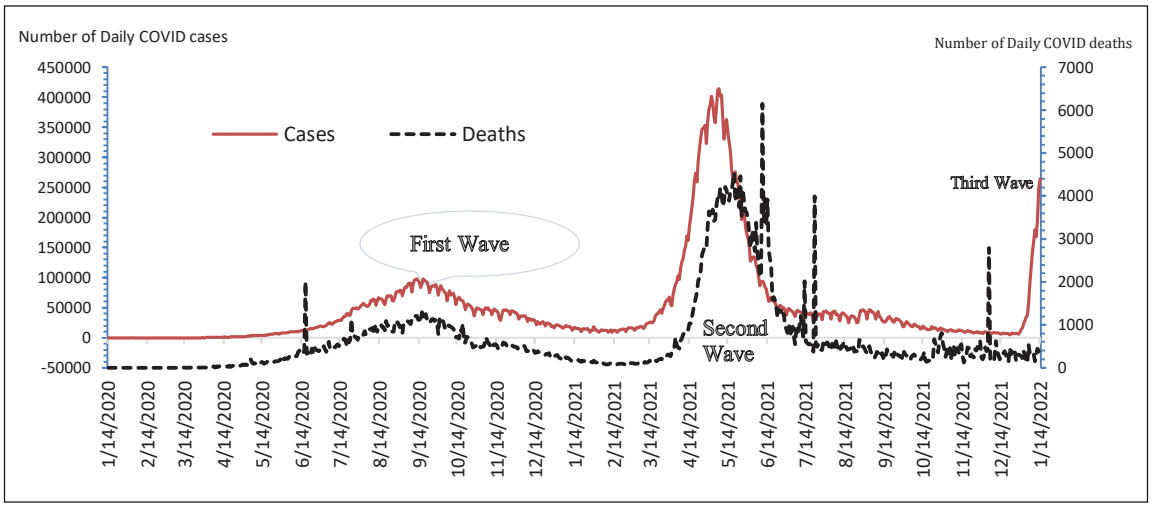
INDIA'S HEALTH RESPONSE TO THE COVID-19

10.3 Like most other countries, India also faced two COVID-19 waves: first in 2020 and second in 2021 (Figure 1). During the first-wave, the cumulative number of COVID-19 cases started rising progressively from the month of May 2020, and peaked in mid-September 2020. Thereafter, the country faced a massive surge in COVID-19 cases starting March 2021, with a peak of more than four lakh daily cases[1] in May 2021 and more than 4400 daily deaths in end

[1]TWC India Edit Team. (2020, December 19). As Data Shows Clear Trends of Recovery, India Records One Crore COVID-19 Cases in 323 Days.

of May 2021. A fresh surge of cases and a new variant Omicron had surfaced in December 2021 and was spreading at the time of writing.

Figure 1: Daily COVID-19 Cases and Deaths in India



Source: World Health Organisation

10.4 To save lives, Government adopted a multi-pronged approach viz., (i) restrictions/partial lockdowns, (ii) building capacity in health infrastructure, (iii) COVID-19 appropriate behaviour, testing, tracing, treatment, and (iv) vaccination drive. Measures were taken to break the chain of transmission in terms of containment and buffer zones; perimeter control; contact tracing; isolation and testing of suspect cases and high-risk contacts, and creation of quarantine facilities. Preventive strategy changed in response to the changing situation observed based on real-time data and evidence. Testing capacity in the country increased exponentially. Tests for COVID-19 were also made free in all government centers. Rapid Antigen Test kits for faster screening were introduced. Manufacturing capacity of N-95 masks, ventilators, personal protective equipment kits, sanitizers were ramped up in a mission mode. Massive infrastructure was created for isolation beds, dedicated intensive care unit beds, and supply of medical oxygen. To meet the exponential rise in medical oxygen demand during second COVID wave, government engaged even railways, Air Force, Navy and industry. In the fight against coronavirus, COVID vaccines emerged best shield against the disease to save lives and sustain livelihood.

COVID Vaccination Strategy

10.5 Guided by scientific and epidemiological evidence, World Health Organisation (WHO) guidelines and global best practices, India's National COVID Vaccination Program has been one of the world's largest vaccination programs[2]. National Expert Group on Vaccine Administration for COVID-19 (NEGVAC) on the basis of concurrent scientific evidence guided the program. The program was envisioned to vaccinate all eligible beneficiaries aged 18 years and above in the shortest possible time.

10.6 "The Liberalized Pricing and Accelerated National COVID-19 Vaccination Strategy", was implemented from 1st May to 20th June 2021. Under the strategy, States/Union Territories (UTs)

[2]Guidelines for COVID-19 vaccination of children between 15-18 years and precaution dose to health care workers (HCWs), Frontline workers (FLWs) & 60+ population with comorbidities

and private hospitals were allowed to procure COVID-19 vaccine directly from manufacturers. Government of India procured 50 percent of monthly vaccine production by the domestic manufacturers, while the State Governments and private hospitals procured remaining 50 percent doses. However, based on real-time feedback, it was changed to "The Revised Guidelines for Implementation of National COVID Vaccination Program" implemented from 21st June 2021, whereby, Government of India procured 75 percent of monthly vaccine production and provided free to States and UTs, while rest could be procured by private hospitals.

10.7 ***Availability of Vaccine***: India is among few countries producing COVID vaccines. The country started with two Made in India COVID vaccines. India's first domestic COVID-19 vaccine, Whole Virion Inactivated Corona Virus Vaccine (COVAXIN), was developed and manufactured by Bharat Biotech International Limited in collaboration with National Institute of Virology of Indian Council of Medical Research (ICMR). The ICMR funded the clinical trials of the COVISHIELD vaccine developed in collaboration with Oxford – AstraZeneca. COVISHIELD and COVAXIN have been widely used vaccines in India. Every month about 250-275 million doses of COVISHIELD and 50-60 million doses of COVAXIN have been produced[3]. COVISHIELD, COVAXIN and COVOVAX have also received emergency authorization approval from WHO. Besides, manufacturing of COVID-19 vaccines viz., Sputnik-V, ZyCoV-D, recombinant (Ad26.COV2-S) have also been given emergency use authorization by the regulatory authority. Moreover, import of COVID-19 Vaccines viz., Sputnik-V, Moderna, and recombinant (Ad26.COV2-S) have also been permitted.

10.8 ***Pricing and equity***: At all Government COVID-19 Vaccination Centres (CVCs), COVID-19 vaccine was made available free of cost for all eligible citizens. Except for about 4-5 percent of total doses administered in the country, rest have been administered at Government COVID-19 Vaccination Centres. Union Budget for 2021-22 allocated ₹ 35,000 crore for procurement under COVID-19 Vaccination Program. Distribution of COVID vaccine to all without discrimination has also been important feature of the vaccination program. Out of total administered doses of COVID-19 vaccines, 49 percent have been administered to females; more than 70 percent of vaccine doses have been administered at CVCs located in rural areas.

10.9 ***Coverage***: In the first phase (from 16th January to 1st March 2021) COVID-19 vaccines were given to Health Care Workers and Frontline workers. In second phase (from 1st March onward), COVID vaccines were extended to persons over 45 years of age with specified co-morbidities and those aged 60 years and above. From 1st April, 2021, coverage was further extended to all citizens aged 45 years and above. From 1st May 2021, all 94 crore persons of age 18 years and above, were made eligible for COVID vaccination. From 3rd January 2022, COVID-19 vaccine coverage has been extended to age-group of 15-18 years. Till 19th January 2022, 3.73 crore youngsters between 15-18 age group have been vaccinated with 1st dose of COVID-19 vaccine covering more than 50 percent of youngsters. Further, from 10th January, 2022, Health Care Workers, Front Line Workers and persons age more than 60 years with co-morbidities have been made eligible to receive a precaution dose of COVID-19 vaccine, on completion of 9 months or 39 weeks from the date of administration of 2nd dose. As on January 19, 2022, 56.66 lakh precautionary doses have been administered to health care workers, frontline workers and persons over 60 years of age.

[3]Update on COVID-19 Vaccine Manufacturing Capacity (PIB: 14 December 2021), Accessed in https://pib.gov.in/PressReleaseIframePage.aspx-?PRID=1781267)

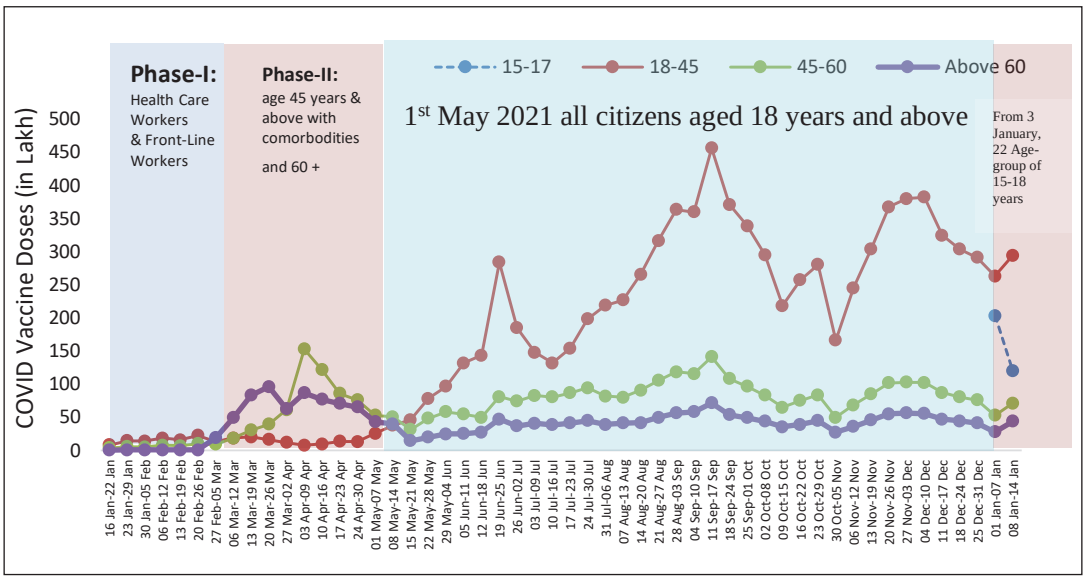
10.10 ***Vaccine hesitancy:*** Misconceptions about the COVID-19 vaccine make people hesitant to take vaccines. To reduce vaccine hesitancy, Government made efforts which include awareness through media channels, radio jockeys, op-eds and articles by identified experts and dissemination of fact-check videos by key experts to provide correct & factual information. From 3rd November 2021, a campaign, 'Har Ghar Dastak', has been initiated to identify and vaccinate those who missed 1st dose and due for 2nd dose through house-to-house mobilisation activity. Vaccine also administered to beneficiaries at their homes through mobile teams viz., 'vaccination toli' along with 'prachartoli'. Interstate competition for coverage, conducting vaccination camp at Bazaar Haats, utilization of social media to counter anti-vaccine rumours, messaging through influential persons and other innovative approaches have helped in vaccination.

10.11 ***Technology driven***: ArogyaSetu mobile app was launched to enable people to assess themselves the risk of their catching the COVID-19 infection. It calculates the risk of infection based on a person's interaction with others, using Bluetooth technology, algorithms and artificial intelligence.

10.12 Co-WIN 2.0 (along with e-VIN), a unique digital platform, supported the real-time vaccination activities viz., registration for vaccine, tracking COVID-19 vaccine status of every beneficiary, stocks of vaccine, storage, actual vaccination process, and generation of digital certificates.

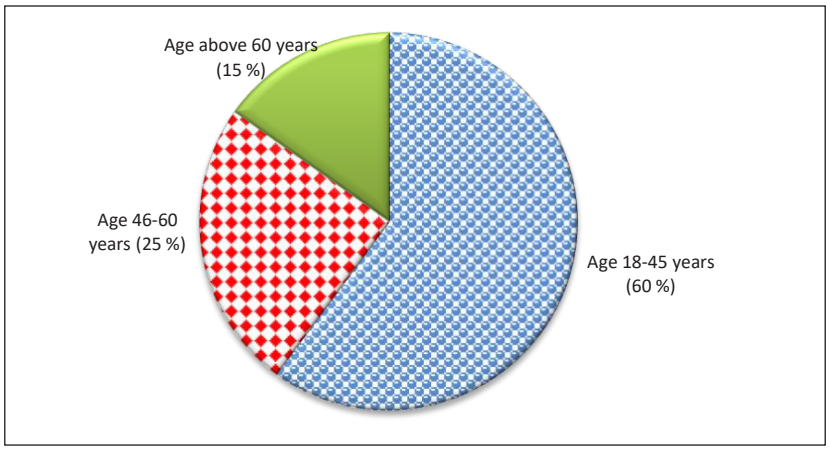
10.13 ***Vaccination Progress***: As on 16th January 2022, a total of 156.76 crore doses of COVID-19 vaccines have been administered: 90.75 crore first dose and 65.58 crore second dose. Vaccination speed increased significantly once the population between ages 18 to 45 years was permitted (Figure 2). Out of total doses administered, largest 60 percent are in the age group 18-45, followed by 25 percent to age group 45-59 year and 15 percent to aged 60 years & above (Figure 3).

Figure 2: Weekly COVID-19 vaccine doses by age in India



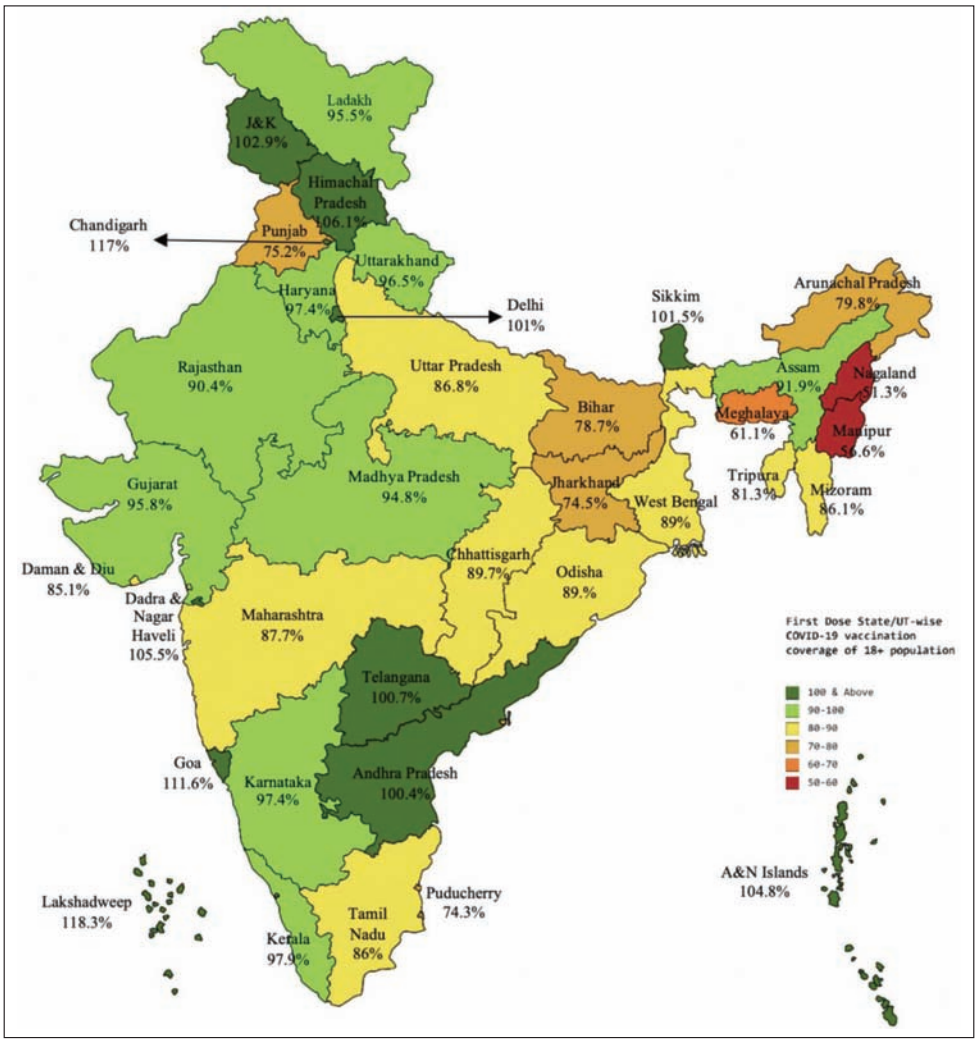
Source: Ministry of Health & Family Welfare

Figure 3: Distribution of vaccines by age group (as on 16th January, 2022)



Source: Ministry of Health & Family Welfare: https://dashboard.cowin.gov.in/

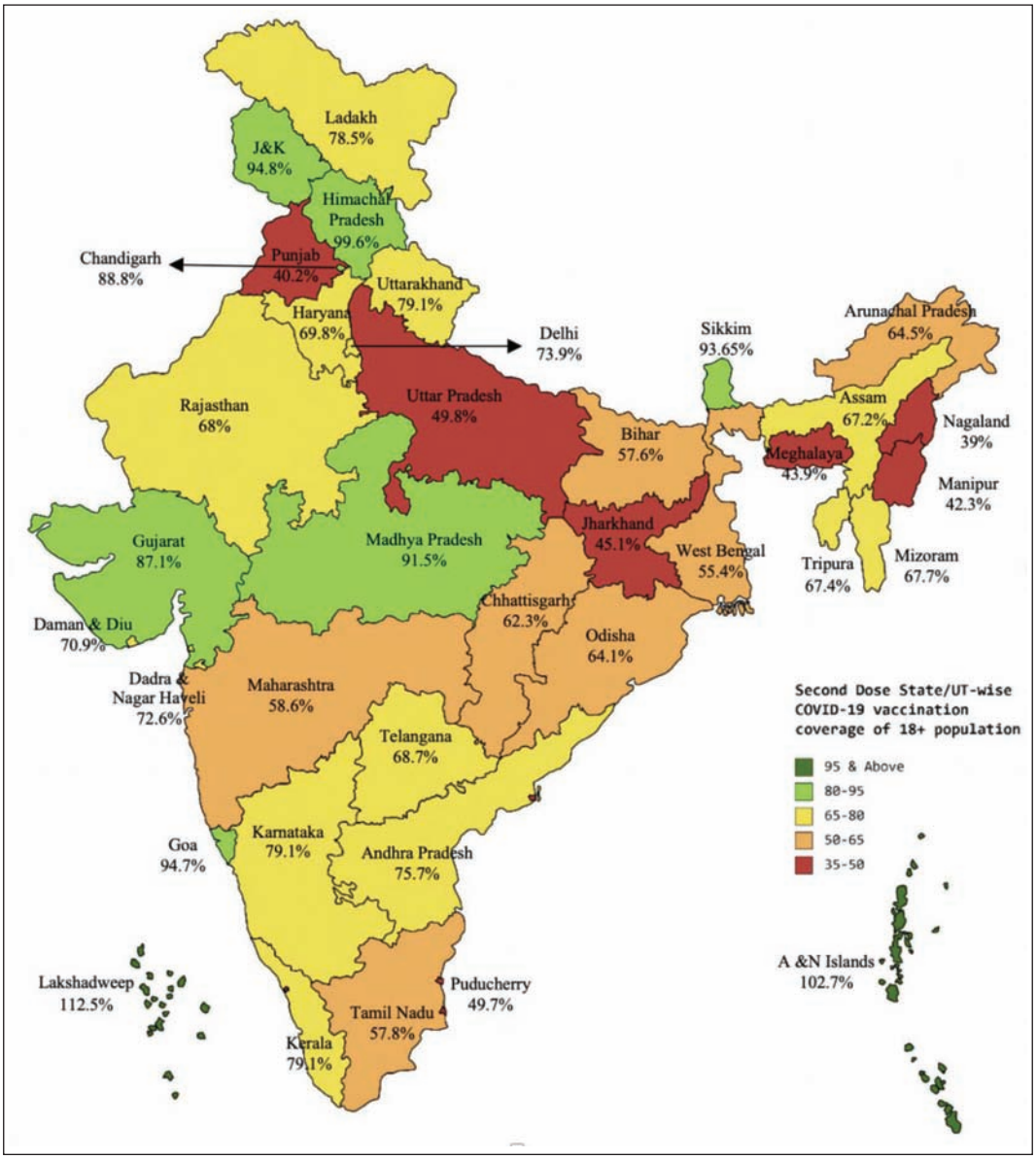
Map 1: Percent of adult population who have been administered the first Dose of COVID-19 vaccine (as on 31st December 2021)



Source: Ministry of Health & Family Welfare, Govt. of India

Note: These are number of doses administered in the states and not the number of persons residing in the state to whom the doses have been administered.

Map 2: Percent of Adult population who have been administered the Second Dose of COVID-19 vaccine (as on 31st December 2021)

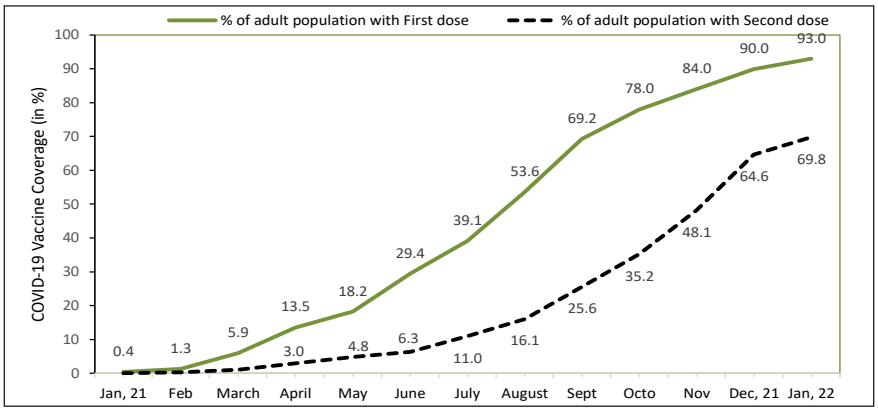


Source: Ministry of Health & Family Welfare, Govt. of India

Note: These are number of doses administered in the states and not the number of persons residing in the state to whom the doses have been administered.

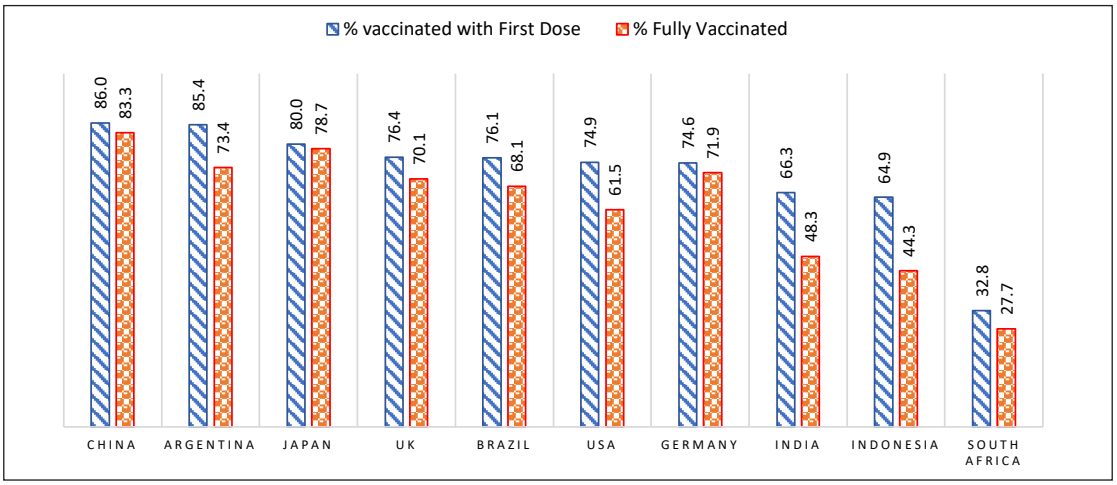
10.14 State's vaccination coverage of adult population as on 31st December 2021 is given in Map-1 (first dose) and Map-2 (second dose). India is among few large countries who have vaccinated large part of their population against COVID-19 virus. As on 16 January 2022, eligible population (18 year and above) vaccinated in India with first dose was 93 percent and with second dose 69.8 percent (Figure 4). As per WHO data, as on 2nd week of January 2022, 66.3 percent and 48.3 percent of the total population in India is vaccinated with first and second doses respectively. In Indonesia, population vaccinated with first dose is 64.9 percent and with second dose 44.3 percent, while in China, population vaccinated with first dose is 86 percent and with second dose 83.3 percent (Figure 5).

Figure 4: Cumulative Percent of Adult Population with COVID-19 Vaccine



Source: Ministry of Health and Family Welfare, Government of India (as on 16 January, 2022)
Note: Target as per Registrar General of India estimates: 93,90,39,000.

Figure 5: Population vaccinated by country (in percent)



Source: World Health Organization
Note: Status is as on first 2 weeks of January 2022.

Box 1: Some initiatives taken to fight against COVID-19

Laboratory network: As of 24th November 2021, a total of 1346 government laboratories and 1701 Private Laboratories (3047 laboratories in total) are conducting COVID-19 testing. So far as on 20.01.2022, India conducted 70.93 crore total COVID tests; On 20.01.2022, India conducted 19.35 lakh COVID tests.

Medical Oxygen Plants: Defence Research and Development Organisation (DRDO) was entrusted with installing and commissioning 931 Medical Oxygen Plants in 869 hospitals across the nation within six months, funded through PM-CARES fund. These plants were designed and developed based on the spin-off technology of Onboard Oxygen Generation System (OBOGS) of India's indigenous fighter aircraft Tejas.

Oxy-Care System: DRDO developed SPO2 based Oxygen Cylinder Controller (SPOCC) based Medical Oxygen Cylinders to optimally use the available medical oxygen for COVID-19 patients. This system supplies quantity of oxygen based on individual's SPO2 levels. This technology was

transferred to M/s Bharat Forge Ltd and M/s UFLOW automation. They have supplied 1.5 lakhs such systems to Government hospitals across the country.

Anti-COVID Drug: An anti-COVID-19 therapeutic application of the drug 2-deoxy-D-glucose (2-DG) in collaboration with Dr. Reddy's Laboratories, Hyderabad was formulated. Based on results of Phase-II and Phase-III clinical trials, Drug Controller General of India (DCGI) granted permission for Emergency Use of 2-DG as adjunct therapy in moderate to severe COVID-19 patients. The drug comes in powder form in sachet, which is taken orally by dissolving it in water. DRDO has transferred its patented process technology to 13 major Pharma industries.

TRENDS IN SOCIAL SECTOR EXPENDITURE

10.15 Government's spending on social services increased significantly during the pandemic. In 2021-22 (BE), Centre and State governments earmarked an aggregate of ₹ 71.61 lakh crore for spending on social service sector [Table 1]; an increase of 9.8 percent over 2020-21. Last year's (2020-21) revised expenditure has also gone up by ₹ 54,000 crore from the budgeted amount. In 2021-22 (BE), funds to the sector increased to 8.6 percent of Gross Domestic Product (GDP) (8.3 percent in 2020-21). During the last five years, social services accounted for about 25 percent of the total Government expenditure (Centre and States taken together). In 2021-22 (BE), it was 26.6 percent.

10.16 Although, the pandemic has affected almost all social services, yet the health sector was the worst hit. Expenditure on health sector increased from ₹ 2.73 lakh crore in 2019-20 (pre-COVID-19) to ₹ 4.72 lakh crore in 2021-22 (BE), an increase of nearly 73 percent. For the education sector, the increase during same period was 20 percent.

10.17 In addition to the National Health Mission, Union Budget 2021-22, announced Ayushman Bharat Health Infrastructure Mission, a new Centrally Sponsored Scheme, with an outlay of about ₹ 64,180 crore in next five years to develop capacities of primary, secondary, and tertiary care Health Systems, strengthen existing national institutions, and create new institutions to cater to detection and cure of new and emerging diseases. Besides, Union Budget 2021-22 provided an outlay of Rs 35,000 crore towards COVID-19 vaccination.

10.18 The National Health Policy, 2017 envisaged to increase government's health expenditure to 2.5 percent of GDP by 2025. In keeping with this objective, Central and State Governments' budgeted expenditure on health sector reached 2.1 percent of GDP in 2021-22, against 1.3 percent in 2019-20.

Table 1: Trends in Social Service Sector Expenditure by General Government (Combined Centre and States)

Item	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21 (RE)	2021-22 (BE)
(₹ in lakh crore)								
Total Budgetary Expenditure	32.85	37.61	42.66	45.16	50.41	54.11	65.24	71.61
Expenditure on Social Services:	7.68	9.16	10.41	11.40	12.78	13.65	16.34	19.06
i) Education	3.54	3.92	4.35	4.83	5.26	5.80	6.21	6.97
ii) Health	1.49	1.75	2.13	2.43	2.66	2.73	3.50	4.72
iii) Others	2.65	3.48	3.93	4.13	4.86	5.13	6.63	7.37
(As percentage to GDP)								
Expenditure on Social Services:	6.2	6.6	6.8	6.7	6.8	6.7	8.3	8.6
i) Education	2.8	2.8	2.8	2.8	2.8	2.8	3.1	3.1
ii) Health	1.2	1.3	1.4	1.4	1.4	1.3	1.8	2.1
iii) Others	2.1	2.5	2.6	2.4	2.6	2.5	3.4	3.3
(As percentage to total expenditure)								
Expenditure on Social Services:	23.4	24.3	24.4	25.2	25.4	25.2	25.0	26.6
i) Education	10.8	10.4	10.2	10.7	10.4	10.7	9.5	9.7
ii) Health	4.5	4.7	5.0	5.4	5.3	5.0	5.4	6.6
iii) Others	8.1	9.3	9.2	9.1	9.6	9.5	10.2	10.3
(As percentage to social services)								
i) Education	46.1	42.8	41.8	42.4	41.2	42.5	38.0	36.6
ii) Health	19.4	19.1	20.5	21.4	20.8	20.0	21.4	24.7
iii) Others	34.6	38.0	37.7	36.2	38.0	37.6	40.6	38.7

Source: Reserve Bank of India, Budget Documents of Union and State Governments

Note:

- Budget Estimate (BE) & Revised Estimate (RE).
- Social services include, education, sports, art and culture; medical and public health, family welfare; water supply and sanitation; housing; urban development; welfare of SCs, STs and OBCs, labour and labour welfare; social security and welfare, nutrition, relief on account of natural calamities etc.
- Expenditure on 'Education' pertains to expenditure on 'Education, Sports, Arts and Culture'.
- Expenditure on 'Health' includes expenditure on 'Medical and Public Health', 'Family Welfare' and 'Water Supply and Sanitation'.
- The ratios to Gross Domestic Product (GDP) at current market prices are based on 2011-12 base.
- Projected GDP for BE 2021-2022 is Rs 222,87,379 crore.

EDUCATION

10.19 It is difficult to gauge the real time impact of repeated lockdowns on education sector because the latest available comprehensive official data dates back to 2019-20. This provides the longer time pre-COVID trends but does not tell us how the trend may have been impacted by COVID-19 induced restrictions.

10.20 During initial COVID-19 restrictions, as a precautionary measure to protect the students from COVID-19, schools and colleges were closed across India[4]. This posed a new challenge for the Government in terms of continuity of education.

School Infrastructure

10.21 An assessment for the pre-pandemic year of 2019-20 for which data is available reveals that the number of recognized schools & colleges continued to increase between 2018-19 and 2019-20, except for primary & upper primary schools[5] (Table 2).

Table 2: Total number of schools, colleges, and universities in India

Particulars	2018-19	2019-20
Primary & Upper Primary schools (in lakhs)	12.37	12.22
Secondary and Sr. Secondary Schools (in lakhs)	2.76	2.85
Colleges (numbers)	39931	42343
Universities (numbers)	993	1043

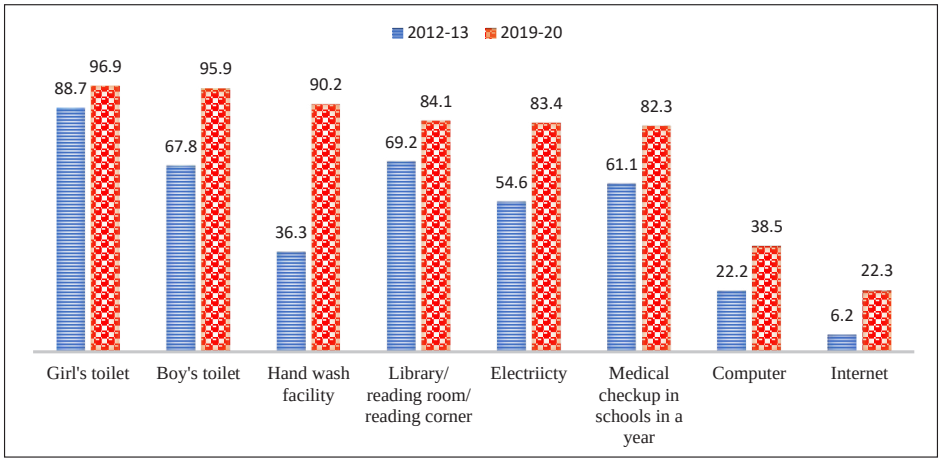
Source: Ministry of Education

10.22 Basic facilities in schools also improved in 2019-20 over earlier years (Figure 6). Toilets (girls or boys), drinking water, and hand-washing facilities are now available in most of Government schools (10.32 lakh)[6]. Priority to drinking water and sanitation in schools under Jal Jeevan Mission, Swachh Bharat Mission as well as under Samagra Shiksha Scheme have been instrumental in providing required resources and creating these assets in schools. As on 19.01.2022, under Jal Jeevan Mission 8,39,443 schools were provided tap water supply. Computers and digital connectivity, however, remained low. Under the Information & Communication Technology (ICT) component of the Samagra Shiksha Scheme, Government supports the establishment of smart classrooms, and ICT labs in schools, including support for hardware, educational software and e-content for teaching.

10.23 Further, availability of teachers, measured by Pupil Teacher Ratio, an indicator whose decrease signals improvement in quality of education, has improved at all levels continuously from 2012-13 to 2019-20: from 34 to 26 at primary, 23 to 18 at upper primary, 30 to 18 at secondary, and 39 to 26 at higher secondary level. The improvement in the number of schools, teachers' availability, and facilities in schools is expected to help improve enrolment and reduce dropout rates.

[4]After 15 October 2020, State/ UT Governments were given the flexibility for re-opening of schools and coaching institutions in a graded manner.
[5]15000 Primary & Upper Primary schools declined.
[6]UDISE+ data comes with more than one-year lag; so data is available up to 2019-20.

Figure 6: Schools with Basic Facilities (in percent)



Source: Ministry of Education (Unified District Information System for Education plus (UDISE+, 2019-20)

School Enrolment

10.24 In 2019-20, 26.45 crore children were enrolled in schools. During the year, schools enrolled about 42 lakh additional children, out of which 26 lakh were in primary to higher secondary levels and 16 lakh were in pre-primary as per Unified District Information System for Education plus (UDISE+) database[7]. The enrolments increased across all levels[8] viz., upper-primary, secondary, and higher secondary, except for primary level. At primary level, enrolment reduced from 13.5 crore in 2012-13 to 12.2 crore 2019-20. This decline in enrolment was because of decline in total number of children in the age group 6-10 years[9].

10.25 Year 2019-20 saw improvement in gross enrolment ratios (GER)[10] at all levels and improvement in gender parity. GER in primary – enrolment in class 1st to 5th as a percentage of population in age 6 to 10 years - for girls as well as boys have improved in 2019-20. This improvement has reversed the declining trends between 2016-17 and 2018-19 (Figure 7.a). GER in upper-primary (enrolment in class 6 to 8 as a percent of population in age 11-13 years), which was stagnant between 2016-17 and 2018-19, improved in 2019-20 (Figure 7.b). GER for boys and girls in Secondary (9th & 10th) have also improved in 2019-20 (Figure 8). In corresponding age groups in Primary and Upper-primary levels, girls' GER are better than boys' (UDISE+, 2019-20).

[7]The Unified District Information System for Education plus (U-DISE+) collects data on various indicators on school education. For the purpose of this report schools with Primary or Upper Primary classes have been referred to as 'Elementary Schools'

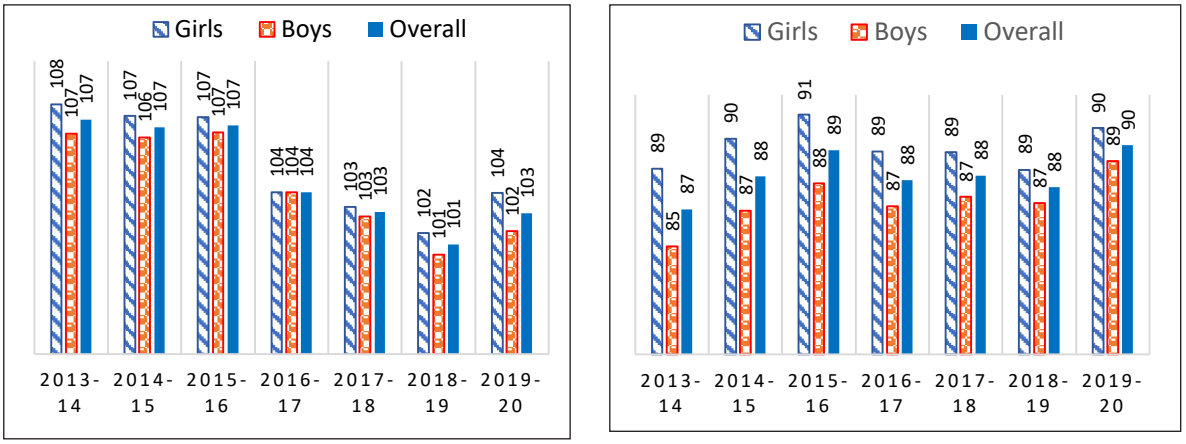
[8]Levels of education: Primary (1-5th Std), Upper primary (6-8th Std), Secondary (9 & 10th Std), Higher secondary (11 & 12th Std).

[9]Report on UDISE+, 2019-20

[10]GER is defined as total enrolment in a particular level of school education, regardless of age, expressed as a percentage of the population of the official age-group which corresponds to the given level of school education in a given school year.

Figure 7: School Gross Enrolment Ratios in India (in percent)

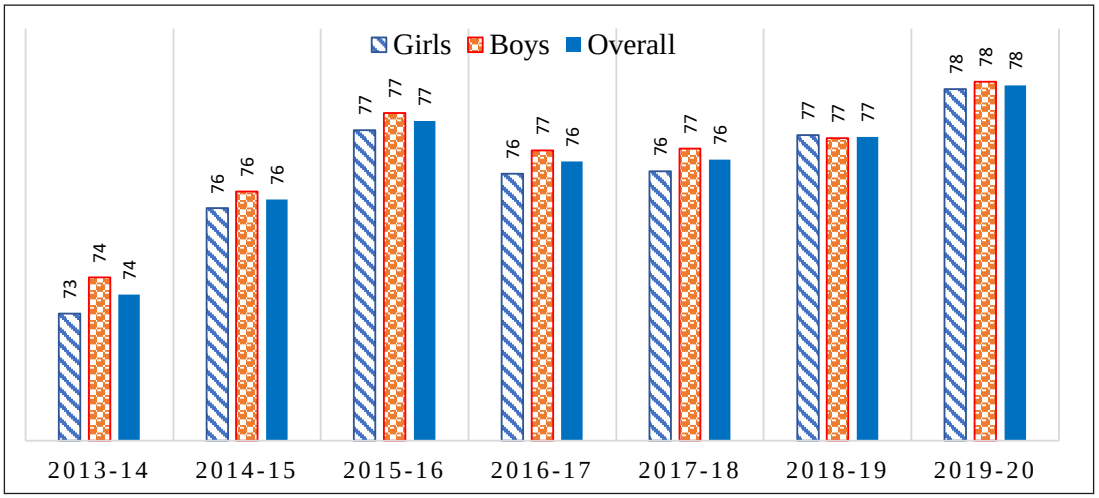
(a) Primary level **(b) Upper Primary level**



Source: Ministry of Education (UDISE+)

Note: GER greater than 100 percent might represent presence of over or under age children in a particular level of education.

Figure 8: School Gross Enrolment Ratios in India: Secondary level (in percent)



Source: Ministry of Education (UDISE+)

School Drop-out

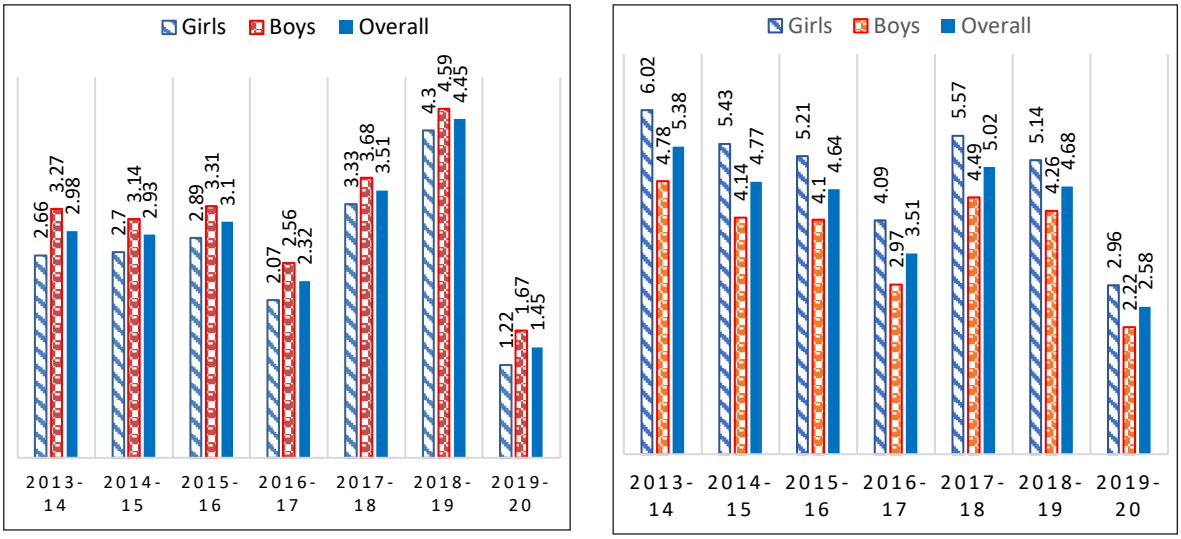
10.26 Year 2019-20 saw decline in dropout rates[11] at primary, upper-primary, and secondary levels. In 2019-20, school dropout rate at primary level declined to 1.45 percent from 4.45 percent in 2018-19. The decline is for both girls and boys (Figure 9a). The decline has also reversed the trends of increasing dropout rates during previous two years: 2017-18 & 2018-19. In upper-primary, drop-out rates for girls and boys have continuously declined since 2017-18 (Figure 9b). Similarly, in secondary also, decline in dropout rates is continuous since 2016-17, both for girls and boys (Figure 10)[12].

[11]Dropout rate is defined as proportion of pupil from a cohort enrolled in a given level at a given school year who are no longer enrolled at any grade in the following school year.

[12]The schemes such as Sarva Shiksha Abhiyan, RTE Act, improvement in school infrastructure and facilities, residential hostel buildings, availability of teachers, regular training of teachers, free text books, uniforms to children, Kasturba Gandhi Balika Vidyalaya Scheme and the Mid Day Meal Scheme play important role in enhancing enrolment and retention of children in schools.

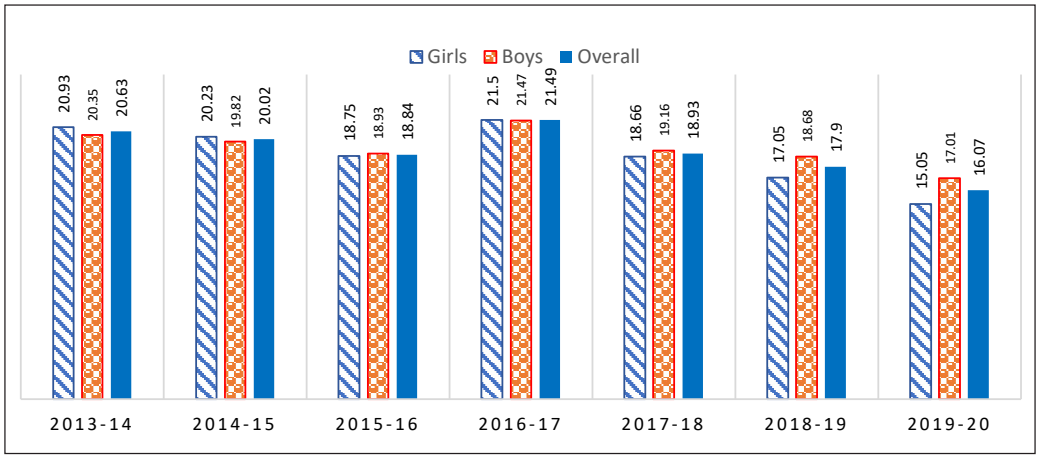
Figure 9: School Dropout Rates in India (in percent)

(a) Primary level **(b) Upper Primary level**



Source: Ministry of Education (UDISE+)

Figure 10: Drop Out Rate: Secondary level (in percent)



Source: Ministry of Education (UDISE+)

10.27 The pandemic has had a significant impact on the education system affecting lakhs of schools and colleges across India. Since the data from Ministry of Education is only available up to 2019-20, the impact of pandemic on enrolment and dropout rates during pandemic years, 2020 and 2021, could not be assessed through comprehensive official data. Thus, policy makers have taken into account alternate sources. Various smaller surveys by the Government, and by citizen-led non-government agencies, such as the Annual Status of Education Report (ASER) 2021, have assessed the impact during pandemic for the education sector in rural areas. We are aware that such data has limitation but in interest of being up to date this data has been included below.

10.28 ASER found that despite the pandemic, enrolment in age cohort of 15-16 years continued to improve as number of not enrolled children in this age group declined from 12.1 percent in 2018 to 6.6 percent in 2021 (Table 3).

10.29 However, ASER (Rural) report also found that during pandemic, children (age 6-14 years) 'not currently enrolled in schools' increased from 2.5 percent in 2018 to 4.6 percent in 2021[13]. The enrolment decline was relatively large among the younger age group (age 7-10 year); decline of enrolment for younger boys was higher than girls. The drop in enrolment happened in 2020, although it has remained stable in 2021. To identify out of school children, their mainstreaming, and resource sharing, Government shared COVID-19 action plan with States and UTs outlining the role of local bodies, formation of nodal group at village/town level, conducting door-to-door/helpdesk-based/app-based survey.

10.30 ASER report also found that during pandemic, children in rural areas have moved out of private to government schools in all three age groups (Table 3). Possible reasons suggested for the shift are: shut down of low-cost private schools[14], financial distress of parents, free facilities in government schools, and families migrating back to villages[15]. Disproportionately high fee in private schools could also be stimulating this shift. If the trend holds, public schools need to be equipped with additional support, in terms of teacher-pupil ratio, classroom space, and teaching/learning materials, to absorb students migrating from private schools and from urban to rural areas. In July 2020, government has issued guidelines for main streaming of children of migrant labourers, allowing for their smooth admissions into schools without asking for any documents other than identity.

Table 3: Children enrolled in schools by age group and school type in Rural areas (in percent)

Age (years)	Annual Status of Education Report 2018				Annual Status of Education Report 2021			
	Govt.	Private	Others	Not Enrolled	Govt.	Private	Others	Not Enrolled
6-14 All	64.3	32.5	0.7	2.5	70.3	24.4	0.7	4.6
7-10 All	64.4	33.5	0.7	1.4	70.3	24.8	0.6	4.4
7-10 Boys	60.6	37.4	0.7	1.4	67.9	26.9	0.5	4.7
7-10 Girls	68.4	29.5	0.7	1.4	72.8	22.3	0.7	4.1
11-14 All	64.1	32	0.8	3.2	70.5	24.5	0.8	4.1
11-14 Boys	60.5	35.9	0.7	2.9	67.5	27.3	0.9	4.3
11-14 Girls	67.6	28	0.8	3.6	73.9	21.5	0.7	3.9
15-16 All	57.4	29.9	0.6	12.1	67.4	25.2	0.9	6.6
15-16 Boys	55.9	32.2	0.5	11.5	66.7	26.3	0.9	6.1
15-16 Girls	58.9	27.8	0.7	12.6	68.1	24	0.8	7.1

Source: Annual Status of Education Report 2021 (Non-government source)
Note: 'Other' includes children going to Madarsa and Education Guaranteed Schemes, 'Not enrolled' includes children who never enrolled or are not currently enrolled.

[13]Annual Status of Education Report (ASER) 2021 studied 76,706 households and reached 75,234 children (age 5-16) in all rural districts of India during September and October 2021. The survey was also conducted during September 2020.
[14]Alam Andaleeb and Priyamvada Tiwari (2021), "Implications of COVID-19 for Low-cost Private Schools", UNICEF: https://www.unicef.org/globalinsight/reports/implications-COVID-19-low-cost-private-schools
[15]Banerji Rukmini & Wadhwa Wilima (2021), "The COVID effect: Changing patterns in public and private inputs into schooling in rural India", ASER 2021

10.31 The access to education, school drop outs, learning gaps especially for children from marginalized communities have always remained major challenges in education. When schools were closed during pandemic, online learning became the most safe and prominent mode of learning. As per the ASER study, existing digital divide, however, exacerbated the equity in access to education. Although, the availability of smartphones has increased from 36.5 percent in 2018 to 67.6 percent in 2021, students in lower grade found it difficult to do online activities compared to higher-grade students. Non-availability of smartphones, non-availability of phone for child to use, and network or connectivity issues were the challenges faced by children (ASER study).

10.32 Though Government data to corroborate these observations is not available, steps have been taken by the Government to minimise the adverse impact of the pandemic on the education system to address the concerns raised through private studies undertaken during the pandemic period. Almost all enrolled children have textbooks for their current grade (91.9 percent). This proportion has increased over the last year, for children enrolled in both government and private schools. Also, 46.4 percent children in reopened schools received learning materials/activities as compared to 39.8 percent children whose schools had not reopened. Further, to overcome the challenge of digital divide and to continue learning during pandemic, Government took measures such as distribution of textbooks at homes, telephonic guidance by teachers, online and digital content through TV and radio, TARA interactive Chatbot, activity-based learning through the Alternate Academic Calendar released by National Council of Educational Research and Training (NCERT) (Box 2).

Box 2: Major Initiatives for Students during COVID-19 pandemic

- **PM e-VIDYA:** Launched in May 2020, PM e-Vidya unifies all efforts related to digital/online/ on-air education to enable coherent multi-mode access to education. The four components of PM e-VIDYA for school education are:
  - One Nation, One Digital Education (DIKSHA) Platform;
  - One Class, One TV channel through Swayam Prabha TV Channels;
  - Extensive use of Radio, Community Radio and Podcasts; and

  For the differently-abled: One DTH channel is being operated specifically for hearing impaired students in sign language. For visually and hearing-impaired students, study material has been developed in Digitally Accessible Information System (DAISY) and in Sign Language; both are available on the NIOS website/ YouTube. About 3,029 audiobook chapters have been developed and uploaded on DIKSHA. Of the produced/recorded 602 videos, 490 textbook-based ISL videos have been uploaded on DIKSHA. All 10,000 words of ISL dictionary have been uploaded on DIKSHA, and is being updated with additional audio and text facilities.
- **National Digital Education Architecture (NDEAR):** The blueprint of NDEAR, a digital infrastructure for Education, was launched on 29th July, 2021. It will be set up within the context of a Digital-First Mindset where the Digital Architecture will not only support teaching and learning activities but also educational planning, governance administrative activities of the Centre and the States Union Territories. It will provide diverse education eco-system architecture for development of digital infrastructure, a federated but inter-operable system that will ensure autonomy of all stakeholders, especially States and UTs.

- **Vidyanjali:** To connect the Government and Government aided schools through a community/ volunteer management program, the government has launched Vidyanjali on 7th September, 2021, Vidyanjali portal enables the community/volunteers to interact and connect directly with schools of their choice to share their knowledge and skills as well as contribute in the form of assets/material/equipment.

Major Schemes for School Education during 2021-22

National Education Policy (NEP), 2020 aims to pave the way for transformational reforms in school and higher education systems in the country. It aims to provide all students, irrespective of their place of residence, quality education system with special focus on the marginalised, disadvantaged and underrepresented groups. The steps taken to provide quality education in government schools and institutions in affordable and competitive manner are as follows:

- **Samagra Shiksha Scheme** has been continued for a period of five years, from 2021-22 to 2025-26, with a total financial outlay of ₹ 2,94,283.04 crore. As an integrated scheme for school education, it covers the entire gamut from pre-school to class XII. It treats school education as a continuum, and is in accordance with Sustainable Development Goal for Education (SDG-4). The scheme not only provides support for the implementation of the Right to Education (RTE) Act, but is also aligned with the recommendations of NEP, 2020: to ensure that all children have access to quality education with an equitable and inclusive classroom environment, to take care of their diverse background, multilingual needs, different academic abilities, and make them active participants in the learning process.

  The major interventions, across all levels of school education, proposed under the scheme are: (i) Universal Access including Infrastructure Development and Retention, (ii) Foundational Literacy and Numeracy, (iii) Gender and Equity, (iv) Inclusive Education, (v) Quality and Innovation, (vi) Financial support for Teacher Salary, (vii) Digital initiatives, (viii) RTE Entitlements including uniforms, textbooks, (ix) Support for Early Childhood Care and Education (ECCE), (x) Vocational Education, (xi) Sports and Physical Education, (xii) Strengthening of Teacher Education and Training, (xiii) Monitoring, (xiv) Programme Management, and (xv) National Component..

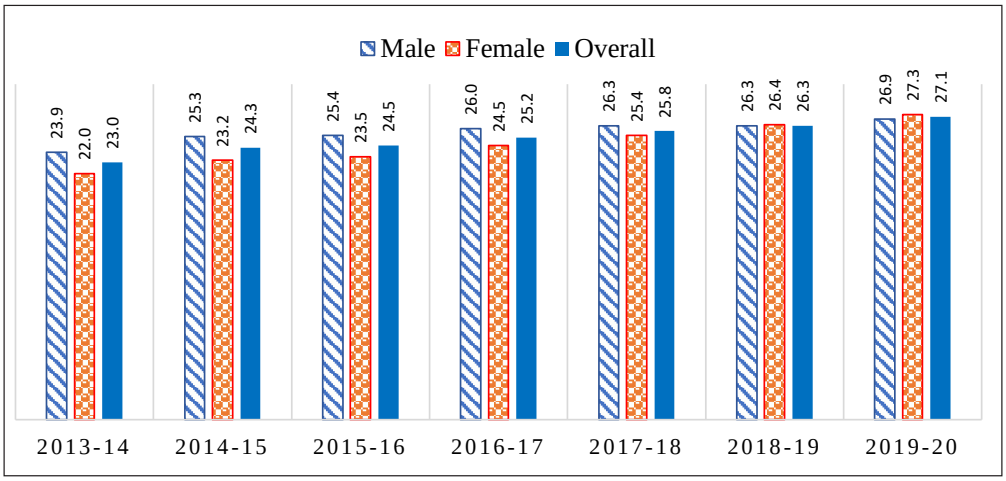
- **NIPUN Bharat Mission:** On 5th July 2021, government launched a National Mission on Foundational Literacy and Numeracy called "National Initiative for Proficiency in Reading with Understanding and Numeracy (NIPUN Bharat)" . The National Mission lays down priorities and actionable agenda for States/UTs to achieve the goal of proficiency in foundational literacy and numeracy for every child by grade 3. The Mission has been set up under the aegis of the centrally sponsored scheme of Samagra Shiksha. NIPUN Bharat lays down the Lakshya or Targets for Foundational Literacy and Numeracy starting from the Balvatika up to age group 9 based on the learning outcomes and developmental goals covering various aspects, concepts and skills.

- **Pradhan Mantri Poshan Shakti Nirman (PM POSHAN) Scheme:** The Scheme, earlier known as 'National Programme for Mid-Day Meal in Schools", covers all school children studying in Balvatika (just before class I) and Classes I-VIII in Government and Government-Aided Schools. During 2020-21, about 11.80 crore children studying in 11.20 lakh institutions benefited under the Scheme. PM POSHAN Scheme in schools has been approved for implementation over the five-year period 2021-22 to 2025-26 with a financial outlay of ₹54061.73 crore from the Central Government and ₹31733.17 crore from the State Governments and UT Administrations.

Higher Education

10.33 Gross enrolment ratio in higher education recorded at 27.1 percent in 2019-20, slightly higher from 26.3 percent in 2018-19. For males, it has also increased from 26.3 percent in 2018-19 to 26.9 percent in 2019-20 while for females it has increased from 26.4 percent to 27.3 percent respectively (Figure 11).

Figure 11: Gross Enrolment Ratios in Higher Education for age 18-23 years (in percent)



Source: All India Survey on Higher Education (AISHE) report 2019-20, Ministry of Education

Recent Initiatives in Higher Education

10.34 Government has taken multiple initiatives aimed at revolutionizing the higher education ecosystem by (i) enabling higher vocationalisation, (ii) greater multi-disciplinary research, (iii) providing multiple entry and exit points, (iv) promoting globalisation of education, (v) leveraging the potential of Information and Communication Technology (ICT) in teaching and learning process for all learners. For integration of vocational education into the higher education system, University Grant Commission (Institutions Deemed to be University) Regulation 2019 has been amended; and guidelines have been issued by UGC and All India Council for Technical Education to enable Higher Education Institutions (HEIs) to offer Apprenticeship/Internship embedded degree programme.

10.35 **National Apprenticeship Training Scheme** (NATS) has been extended for the next five years with an outlay of ₹ 3054 crore which will make, through apprenticeship, around 9 lakh students employable. Under the scheme students will be given apprenticeship in the emerging and frontier technology such as Artificial Intelligence, drone technology, new evolving and emergent areas including expertise required for Production Linked Incentive Scheme, and PM Gati Shakti Programme of the Government. The scope of the NATS has been broadened to give apprentices to students from humanities, commerce and science besides engineering stream.

10.36 **Academic Bank of Credit,** launched on 29.07.2021, would digitally store the academic credits earned from various recognized Higher Educational Institutions (HEI) such that credits so earned can be accounted for award of degree by any given HEI. Appropriate amendments in regulations by University Grants Commission (UGC) have been affected to facilitate multiple entry/exit in academic programmes at HEIs and offering of offshore courses by Institutions of Eminence (IOE).

10.37 ***e-PGPathshala* :** 154 Universities have come on board for accepting credit transfer for courses offered through SWAYAM platform till now, thereby boosting mainstreaming of Massive Online Open Courses (MOOCs). In this regard, the e-PGPathshala has been offered as an Online Gateway of Post Graduate Courses; 778 papers, with 23000 plus e-modules in 67 Subjects have been developed, out of which 23 subjects cover the entire syllabus/curriculum. Due to COVID-19 induced lockdown and restrictions, ePGPathshala website has been used widely across all Universities and several Universities have used ePGPathshala content as a flip class room.

10.38 **Unnat Bharat Abhiyan** has been launched to cater the rural local needs by leveraging higher education. The objective of the scheme is to engage reputed higher educational institutions (central and state; public and private) to understand and work in rural areas. As of now 2897 institutions are participating and they have adopted close to 14500 villages.

10.39 **Scholarships for weaker sections**: To address the issue of access to higher education by students from weaker sections, scholarship schemes (such as Central Sector Scheme of Scholarship for College and University Students which has benefited over 1.5 lakh students in 2021-22 as of November, Special Scholarship Scheme for J&K which has benefited close to 15000 students in 2021-22 as of November) have been operationalised.

SKILL DEVELOPMENT

10.40 To unlock the demographic dividend, several steps have been taken to increase the skill levels in population. Periodic Labour Force Survey (PLFS) 2019-20 shows that formal vocational / technical training among youth (age 15-29 years) and working population (age 15-59 years) have improved in 2019-20 over 2018-19. The improvement in skills has also been for males and females, both in rural and urban sectors. However, formal training for males and females is lower in rural than in urban areas (Table 4).

Table 4: Distribution of Persons received formal vocational/technical training (in percent)

Age group	Rural			Urban			All India		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
2017-18									
15-29 years	2.0	1.3	1.7	4.6	4.2	4.4	2.8	2.2	2.5
15-59 years	1.5	0.9	1.2	4.0	3.3	3.7	2.3	1.7	2.0
2018-19									
15-29 years	2.4	1.5	2.0	4.8	4.6	4.7	3.2	2.5	2.8
15-59 years	1.8	1.1	1.5	4.9	3.9	4.4	2.8	2.0	2.4
2019-20									
15-29 years	3.1	2.7	2.9	7.0	6.5	6.8	4.3	3.8	4.1
15-59 years	2.2	1.7	2.0	6.3	5.4	5.8	3.5	2.9	3.2

Source: Annual PLFS Reports, 2017-18 to 2019-20

10.41 As per the report of first quarter (April-June, 2021) of Quarterly Employment Survey (QES) in respect of establishments employing at least 10 workers in major nine sectors, 17.9 percent of estimated establishments were imparting formal skill training. Sectors such as IT/BPO imparted skill training in 29.8 percent of estimated establishments, followed by 22.6 percent financial services and 21.1 percent education sector's establishments. Further, about 24.3 percent estimated establishments were found to be imparting 'On-the-Job' training, which is higher in IT/BPO sector (36.1 percent of establishments) and financial services sector (34.8 percent) (Table 5).

Table 5: Sector-wise Percentage Distribution of Estimated Establishments imparting Formal Skill Development Training and On the Job Training (in percent)

Sectors	Skill Training	On-the-Job Training
IT/BPOs	29.8	36.1
Financial Services	22.6	38.8
Education	21.1	22.1
Health	20.2	24.0
Manufacturing	17.4	28.3
Construction	15.5	26.0
Transport	13.0	20.6
Trade	11.2	17.4
Accommodation & Restaurants	7.1	13.4
Total	17.9	24.3

Source: Quarterly Employment Survey Report, 2nd Quarter 2021, Labour Bureau.

10.42 Skill development efforts of the Government aim at the removal of disconnect between demand and supply of skilled manpower, building the vocational and technical training framework, skill up-gradation, building of new skills and innovative thinking not only for existing jobs but also jobs that are to be created.

Box 3: National Education Policy 2020: Re-imagining vocational education

Initiatives/targets

- At least 50 percent of school learners to get exposure to vocational education by 2025.
- Considering students in vocational education while arriving at the Gross Enrolment Ratio (GER) targets.
- Secondary schools to collaborate with ITIs, polytechnics, local industry.
- Setting up of Skill labs and creating hub & spoke model in the schools to allow other schools to use the facility.
- To offer vocational education by higher education institutions or in partnership with industry and NGOs.
- Offering vocational courses to students enrolled in all other Bachelor's degree programmes, including the 4-year multidisciplinary Bachelor 's programmes.

- Higher educational institutions to conduct short-term certificate courses in various skills including soft skills.
- Making vocational knowledge developed - 'Lok Vidya' to students through integration into vocational education courses.
- Vocational courses through Open Distance Learning (ODL) mode.
- Integrating vocational education into all school and higher education institutions in a phased manner over the next decade.
- Ministry of Education to constitute a National Committee for the Integration of Vocational Education (NCIVE), consisting of experts in vocational education and representatives from across Ministries, in collaboration with industry, to oversee this effort.
- Setting up incubation centres in higher education institutions in partnership with industries.
- National Skills Qualifications Framework for each discipline vocation and profession.
- Aligning Indian standards to the International Standard Classification of Occupations maintained by the International Labour Organization.

Skill India Mission

10.43 Launched in 2015, Skill India Mission focuses on re-skilling and up-skilling in prominent trades. Under the Mission government implements Pradhan Mantri Kaushal Vikas Yojana (PMKVY), Jan Shikshan Sansthan (JSS) Scheme and National Apprenticeship Promotion Scheme (NAPS), for providing short term Skill Development training and Craftsman Training Scheme (CTS), for long term training, to the youth.

- **Pradhan Mantri Kaushal Vikas Yojana (PMKVY)**

  PMKVY has two training components, viz., Short Term Training (STT) and Recognition of Prior Learning (RPL). Between 2016-17 and 2021-22 (as on 15 January 2022), under PMKVY 2.0 about 1.10 crore persons were trained (inclusive of the placement-linked and non-placement-linked components of the PMKVY): 83 percent certified and about 21 lakhs placed. In 2021-22, under PMKVY 3.0, 3.48 lakh persons have been trained: 50 percent certified and 16,321 placed. Under Pradhan Mantri Kaushal Kendras (PMKKs), from 2016-17 to 2021-22, 16.35 lakh persons were trained and over 78 percent of them were certified.

  PMKVY also provided training to Shramiks (migrant labourers) affected by COVID-19. This component covered 116 districts of 6 States, viz., Assam, Bihar, Madhya Pradesh, Odisha, Rajasthan and Uttar Pradesh. As on 15.01.2022, 1.26 lakh migrants have been trained / oriented (0.88 lakh in STT and 0.38 lakh in RPL).

  Several micro-programmes under PMKVY have also been formulated for targeting artisans' clusters in partnership with private sector, also to ensure employment to all artisans. Special project has been launched to revive the traditional Namda craft of Jammu & Kashmir and upskilling of Weavers & Artisans of traditional crafts of Nagaland and Jammu and Kashmir.

  Recognition of Prior Learning (RPL): RPL's objectives are (i) to align the competencies of the unorganized workforce of the country with the standardized National Skill Qualification

Framework; (ii) to enhance the opportunities for employment and provide alternative means for higher education; (iii) to provide opportunities for reducing inequalities. As on 15th January 2022 , more than 63 lakh beneficiaries have been certified across 37 different sectors.

- **Jan Shikshan Sansthan (JSS) Scheme**

  JSS aims to provide vocational skills to non-literate, neo-literates, persons with rudimentary level of education up to 8th and school dropouts up to 12th standard in the age group of 15-45 years. The priority groups are women, SC, ST, minorities, divyangjan and other backward sections of the society. The Jan Shikshan Sansthans work at the doorstep of the beneficiaries with minimum infrastructure and resources. Under the scheme grant is released to Jan Shikshan Sansthans (NGOs) for Skill Development.

- **National Apprenticeship Promotion Scheme (NAPS)**

  This Scheme promotes apprenticeship training and the engagement of apprentices by providing financial support to industrial establishments undertaking apprenticeship program under The Apprentices Act, 1961. As on 31 October 2021, 4.3 lakh apprentices engaged under the scheme.

- **Craftsmen Training Scheme (CTS)**

  CTS is for providing long-term training in 137 trades through 14,604 Industrial Training Institutes (ITIs) across the country. For session 2020, 13.36 lakh trainees were enrolled.

Aatmanirbhar Skilled Employees Employer Mapping (ASEEM) portal

10.44 ASEEM, a digital platform, created to match supply of skilled workforce with the market demand, acts as a directory of skilled workforce. As on 31.12.2021, 1.38 crore candidates have been registered on the portal including candidates registered on Skill India Portal (SIP). As on 31.12.2021, around 26.7 lakh migrant's data/profile are also available on the portal. The Portal consists of three IT based AI (artificial intelligence) driven interfaces for stakeholder interactions:

- A job application for individuals with access to hyper local jobs using machine learning and automated match based on persona.
- A demand and campaign management system for employers to forecast the current and future demand.
- A management dashboard for analytics and insights. This could also be used for future decision making.

India International Skill Centre (IISC) Network

10.45 IISC Network is catering to the needs of foreign countries where Indian manpower is in demand. The IISC Network is a fee-based market driven model; based on global workforce supply and demand dynamics. It provides incremental skill training on international standards and assessment of skills for overseas employment. India has agreements with Germany, Belarus, United Kingdom, France, Australia, Japan and Qatar in the field of apprentices/training.

Pradhan Mantri Dakshta Aur Kushalta Sampann Hitgrahi Yojana (PM-DAKSH)

10.46 PM-DAKSH Yojana is a national action plan for skilling of marginalized persons including scheduled castes, backward classes and safai karamcharis. The eligible target group are being

provided skill development training programmes on (i) up-skilling/re-skilling (ii) short term training programme (iii) long term training programme and (iv) entrepreneurship development program. During the year 2021-22, a target has been set to provide skill development training to approximately 50,000 persons of the target groups.

TRENDS OF EMPLOYMENT

10.47 The COVID-19 pandemic and the restrictions on the movement of individuals and economic activities to curb its spread significantly impacted livelihoods across the globe. This section analyses trends in labour market and the impact of COVID-19 on employment using annual and quarterly data by Periodic Labour Force Survey (PLFS). PLFS is the comprehensive Government dataset used to analyse the trends in labour market. However, this data is available with a large lag[16]. The latest update of quarterly PLFS urban sector is available up to March 2021[17] and annual PLFS data available up to 2019-20. In the absence of high frequency data on labour market indicators, other proxies such as subscriptions of EPFO scheme and demand for work under MGNREGA, have been used to analyse the more recent trends in employment in urban and rural sectors.

Trends in Urban employment using Quarterly PLFS data

10.48 Before the outbreak of COVID-19, the urban labour market had shown signs of improvement in terms of labour force participation rate (LFPR), Worker population ratio (WPR) and Unemployment rates (UR). However, the nation-wide lockdown imposed in late-March, 2020 adversely impacted the urban labour market. In the first quarter of 2020-21, the unemployment rate for urban sector rose to 20.8 percent. The LFPR and WPR in urban sector also declined significantly during this quarter (Table 6).

Table 6: Labour market indicators for Urban sector (age: 15 & above) at CWS (in percent)

Survey Year	Quarters	LFPR	WPR	UR
2019-20	July-Sept, 2019	47.3	43.4	8.3
	Oct-Dec, 2019	47.8	44.1	7.8
	Jan-March, 2020	48.1	43.7	9.1
	April-June, 2020	45.9	36.4	20.8
2020-21	July-Sept, 2020	47.2	40.9	13.2
	Oct-Dec, 2020	47.3	42.4	10.3
	Jan-March, 2021	47.5	43.1	9.3

Source: Quarterly PLFS reports

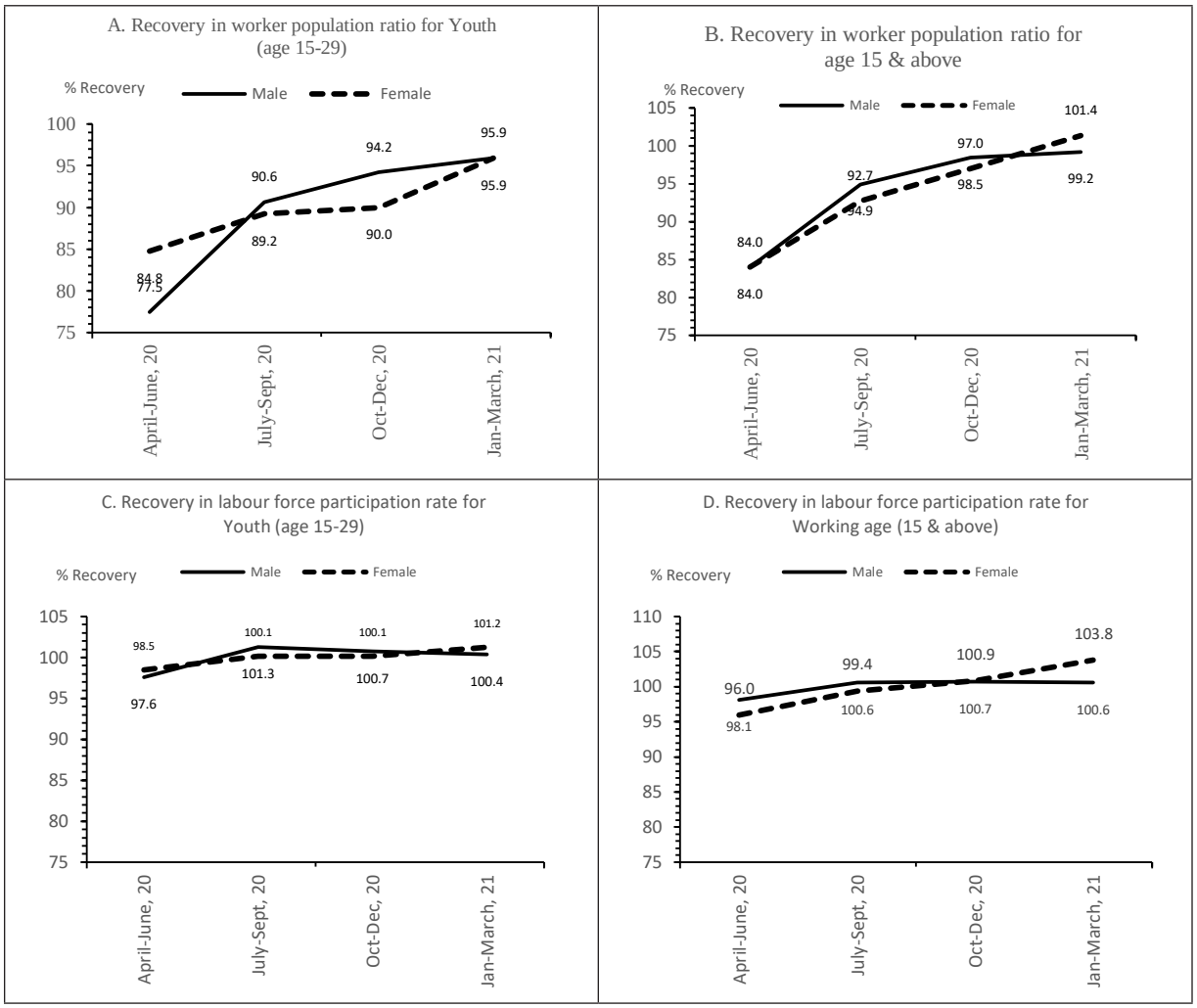
Note: LFPR is defined as the percentage of population in the labour force. Labour force comprises of persons who were either working (employed) or seeking work (unemployed). WPR is defined as the percentage of employed persons in the total population. UR is defined as the percentage of unemployed persons in the labour force.

[16]Quarterly PLFS for urban sector has a lag of about 9 months and do not cover the rural sector. Other countries viz., Japan, Australia, United Kingdom and USA, publish their quarterly labour force surveys in less than two months of time and monthly data within a month from reference period.

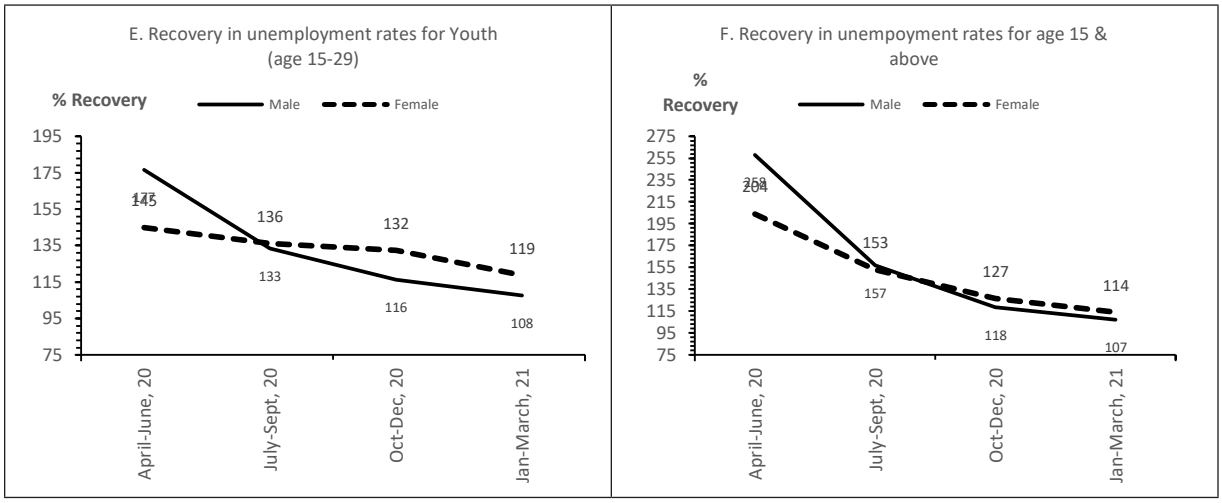
[17]The activity status determined on the basis of a reference period of last 7 days preceding the date of survey is known as the current weekly status (CWS) of the person

10.49 With the revival of economy in the subsequent quarters of 2020-21, all three labour market indicators showed a swift recovery (Figure 11). The UR gradually declined during this period to reach 9.3 per cent in Q4 of 2020-21. The UR for males as well as females, aged 15 & above, recovered to the pre-pandemic levels. Both the LFPR and WPR for males as well as females, aged 15 & above, almost reached their pre-pandemic levels[18] during the last quarter of 2020-21. (Figure 12).

Figure 12: Urban Labour Market Recovery from pre-pandemic levels



[18]Pre-pandemic levels are taken as the quarterly average of all the quarters during FY 2019-20



Source: Quarterly PLFS reports, MoSPI

10.50 Note that, the latest quarterly urban sector PLFS data reports the impact of first COVID-19 wave and the following recovery till Q4 of 2020-21. In order to gauge the performance of the labour market during 2021-22, proxy measures have to be been used (though these have limitations). The following sub-sections use the data on subscriptions of EPFO scheme and demand for work under MGNREGA as proxy indicators to analyse these recent trends in urban and rural areas respectively.

Trends in Urban Employment using Employees' Provident Fund Organisation (EPFO) Payroll Data

10.51 Broadly, the EPFO data covers the low paid workers in medium and large establishments of formal sector[19]. The net addition in EPFO subscriptions is an indicator of the extent of formalisation of the job market, and the coverage of social security benefits to the organized/ semi-organized sector workforce. An analysis of the latest EPFO data suggests significant acceleration in formalisation of the job market, driven by both new formal jobs and formalisation of existing jobs, during 2021, with 13.95 lakh net addition to EPF subscribers in November 2021.

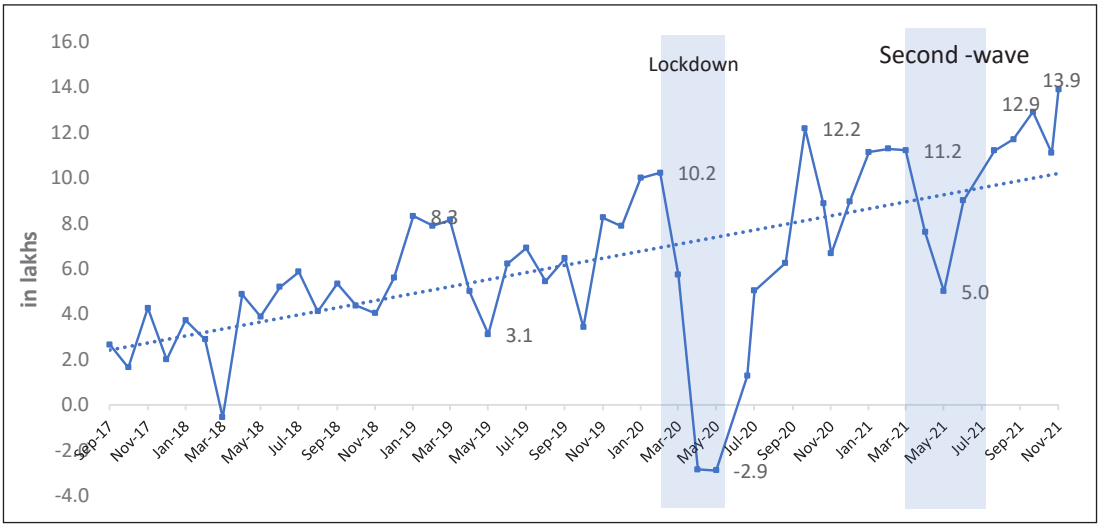
10.52 Owing to the large impact witnessed during the nation-wide lockdown, the net addition to EPFO subscriptions declined and turned negative in April-May 2020, that implies a net exit was registered from the scheme. With the unlocking of the economy and easing of restrictions, the EPFO subscriptions bounced back swiftly, reaching 12.2 lakh in September 2020. The net additional subscription witnessed a decline again in November 2020 and also during the second

[19]EPFO publishes subscriptions data every month, with a lag of two months, however, it has limitations: (i) The data does not cover establishments employing less than 20 persons, with few exceptions. Certain establishments notified by the Central Government even if they employ less than 20 persons each. Most of the establishments in India are smaller in size, EPFO payroll represents only a small fraction. Though old, yet the only latest available Sixth Economic Census (EC), 2013 suggests that only 0.52 percent (about 3 lakh establishments out of total 58.5 million) establishments were employing 20 or more workers. (ii) The data also do not cover workers getting pay more than ₹15000 per month, except those permitted or paying their contribution on voluntary basis. It, thus, excludes most of the better paid skilled workers. (iii) Workers getting jobs in informal sector are not reflected in EPFO subscriptions. In 2019-20, close to 90 percent of additional workers joined workforce were in the informal nature of employment.

wave of Covid-19 (April-June 2021). However, the magnitude of decline in both the cases was less compared to that during April-May 2020. The monthly net additional EPF subscription during May 2021 was 5 lakh as against -2.9 lakh in May 2020. In November 2021, net addition in subscription peaked with 13.9 lakh new subscribers, the highest in any given month since 2017. The latest payroll data of EPFO shows that the net addition in EPF subscribers reached 13.95 lakh during the month of November 2021, which translates into growth of 109.21 percent from November 2020, and a growth of 25.65 percent from October, 2021.

10.53 Thus, the monthly net addition in subscriptions during 2021 has not only been higher than the corresponding monthly values in 2020, but they have also surpassed the levels of the corresponding months during pre-pandemic year 2019. This points to the formalisation of the job markets as well as new hiring (Figure 13).

Figure 13: Net addition in EPF Subscribers (in lakhs)



Source: EPFO

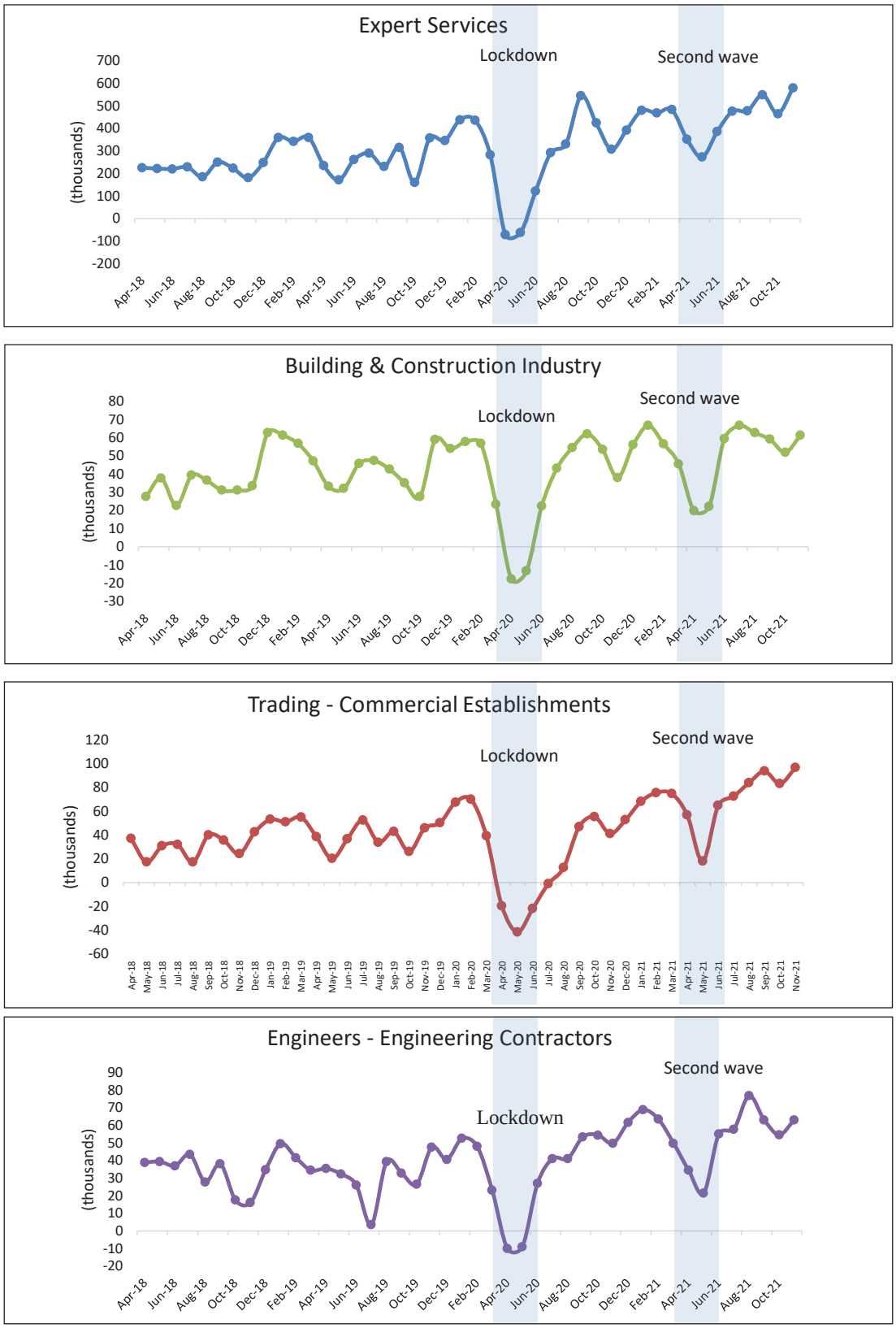
Note:

1. Data is provisional as updation of employees' records is a continuous process and gets updated in subsequent month/s.
2. Net subscriptions equals new EPF subscribers added to exited members who rejoined and re-subscribed net of members exited

10.54 A swift rebound of subscriptions continued in Expert Services and Trading establishments until September 2021, and in Engineering until August, 2021. Subscriptions, however, slowed down in August 2021 in Building & Construction. In November 2021[20], EPFO subscriptions have increased in these sectors (Figure 14).

[20]Establishments under EPF are highly concentrated in few services. In 2021-22, expert service (43 percent) had highest share, followed by trading – commercial establishments (6.9 percent), engineers – engineering contractors (5.1 percent), and building and construction industry (4.8 percent). Share of 'Trading – commercial establishments' in net payroll subscribers has increased in 2020-21 from 2019-20, however it has declined for other three industries.

Figure 14: Net New EPF Subscribers (thousands) in Selected Sectors



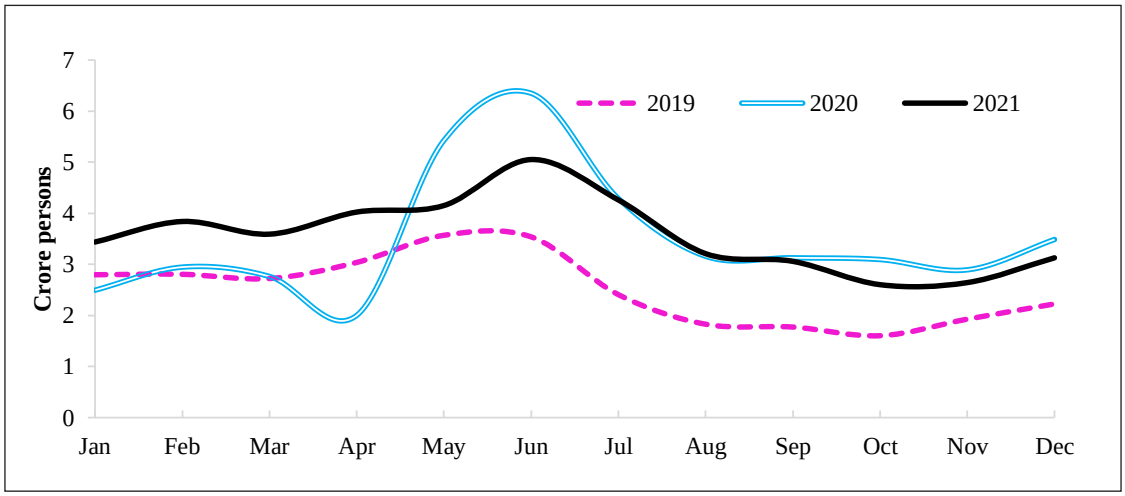
Source: EPFO

Trends in data on demand for work under MGNREGS

10.55 The demand for work under Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) is an indicator of rural labour markets. An analysis of the latest data on demand for work under MGNREGS suggests the following trends in the rural labour market: (i) MGNREGS employment peaked during the nation-wide lockdown in 2020 (ii) the demand for MGNREGS work has stabilized after the second COVID wave; (iii) aggregate MGNREGS employment is still higher than pre-pandemic level (Figure 15).

10.56 During the nationwide lockdown, the aggregate demand for MGNREGS work peaked in June 2020, and has thereafter stabilized. During the second-COVID-wave, demand for MGNREGS employment reached the maximum level of 4.59 crore persons in June 2021. Nonetheless, after accounting for seasonality, the demand at an aggregate level still seems to be above the pre-pandemic levels of 2019 (Figure 15). For some states like Andhra Pradesh and Bihar, the demand for work under MGNREGS has reduced to below the pre-pandemic levels during the last few months.

Figure 15: Persons demanded work under MGNREGS (in Crores)



Source: MGNREGA portal, D/o Rural Development

10.57 Intuitively, one may expect that higher MGNREGS demand may be directly related to the movement of migrant labour i.e. source states would be more impacted. Nevertheless, state-level analysis shows that for many migrant source states like West Bengal, Madhya Pradesh, Odisha, Bihar, the MGNREGS employment in most months of 2021 has been lower than the corresponding levels in 2020. In contrast, the demand for MGNREGS employment has been higher for migrant recipient states like Punjab, Maharashtra, Karnataka and Tamil Nadu for most months in 2021 over 2020. There are still other states that do not neatly fit into this categorization. Therefore, the relationship between MGNREGS employment and movement of migrant labour during the last two years cannot be conclusively determined, and requires further research.

Long-term trends in employment using annual PLFS data

10.58 During Periodic Labour Force Survey (PLFS) 2019-20 (survey period from July 2019 to June 2020), employment at usual status[21] continued to expand. Between 2018-19 and 2019-20, about 4.75 crore additional persons joined the workforce. This is about three times more than the employment created between 2017-18 and 2018-19. The rural sector contributed much more to this expansion relative to the urban sector (3.45 crore in rural sector and 1.30 crore in urban sector). Further, amongst the additional workers, 2.99 crore were females (63 percent). About 65 percent of the additional workers joined in 2019-20 were self-employed. About 75 percent of the female workers who joined as self-employed were 'unpaid family labour.' About 18 percent of the additional workers were Casual labourer and 17 percent were 'Regular Wage/Salaried Employee'. Further, the number of unemployed persons in 2019-20 has also decreased by 23 lakhs, constituted largely by males from the rural sector (Table 7).

Table 7: Estimates of Labour Force, Employment, and Unemployment for the years 2017-18 to 2019-20 (all ages; principal status+ subsidiary status , in crore)

Description	Rural			Urban			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
2017-18									
Labour Force	25.48	8.67	34.15	13.25	3.57	16.82	38.73	12.24	50.97
Employment	23.91	7.70	31.61	12.39	3.15	15.53	36.29	10.85	47.14
Unemployment	1.57	0.97	2.54	0.86	0.42	1.29	2.44	1.39	3.83
2018-19									
Labour Force	25.77	8.77	34.54	13.60	3.68	17.28	39.37	12.45	51.82
Employment	24.37	8.46	32.83	12.64	3.31	15.96	37.01	11.77	48.78
Unemployment	1.40	0.31	1.71	0.96	0.37	1.33	2.36	0.68	3.04
2019-20									
Labour Force	26.64	11.12	37.76	14.23	4.35	18.58	40.87	15.47	56.34
Employment	25.45	10.81	36.26	13.32	3.95	17.27	38.77	14.76	53.53
Unemployment	1.18	0.32	1.50	0.91	0.40	1.31	2.09	0.72	2.81

Source: Survey Estimates using PLFS 2017-18, 2018-19 and 2019-20 Surveys. The estimates are approximate.

Note 1: Projected population as on 1st January, 2018 was 135 crore, as on 1st January 2019 was 137 crore; and as on 1st January, 2020 was 140. 48crore. The formula for projection is A = A1 * [1 + R /100](n/k), where A1 is the census population as on 1st March 2011, R is the percentage decadal change in population between census 2001 and 2011, n is the month of projection, and k is number of months between March 2011 and March 2021.

Note 2: Principal status (ps) measures the activity in which an individual has spent relatively longer time of a reference year (major time criterion) while subsidiary status (ss) measures the activity status of an individual who has spent majority of days out of work force but have worked for short period of time (more than 30 days).

[21]Usual status is the activity status of a person during the reference period of 365 days preceding the date of survey.

10.59 Formal-informal employment (ps+ss) across organized and unorganized sector is given in table 8. Of the additional workers joined in 2019-20, close to 90 percent were in the informal nature of employment and more than 98 percent were in unorganised sector. About 91 percent of additional workers were in unorganised-informal sector. Table 8 gives estimates of total employment in formal and informal across organized and unorganized sector.

Table 8: Formal-Informal Employment (ps+ss) across Organized and Unorganized Sector (in Crores)

Type of Employment	Organized	Unorganized	Total
2017-18			
Formal	4.43	0.28	4.70
Informal	4.62	37.79	42.43
Total	9.05	38.07	47.13
2018-19			
Formal	4.91	0.45	5.35
Informal	4.55	38.87	43.43
Total	9.46	39.32	48.78
2019-20			
Formal	5.09	0.80	5.89
Informal	4.46	43.19	47.64
Total	9.55	43.99	53.53

Source: Estimated using PLFS 2017-18, 2018-19 and 2019-20 Surveys.
Note: As per National Commission for Enterprises in Unorganized Sector (NCEUS) classification, "The unorganised sector consists of all unincorporated private enterprises owned by individuals or households engaged in the sale and production of goods and services operated on a proprietary or partnership basis and with less than ten total workers." However, "informal workers consist of those working in the unorganised enterprises or households, excluding regular workers with social security benefits, and the workers in the formal sector without any employment benefits /social security provided by the employers." (NCEUS, 2007a, p.3).

10.60 Industry wise employment (ps+ss) in India is given in Table 9. Of workers added in 2019-20 shows that more than 71 percent were in the agriculture sector. Among the new workers in the agriculture sector, females account for about 65 percent. Trade, hotel and restaurant sector accounted for a little over 22 percent of the new workers, in line with previous year's trend where the sector represented more than 28 percent of the new workers. The share of manufacturing has declined from 5.65 percent of new workers added in 2018-19 to about 2.41 percent of new workers added in 2019-20, and so has that of construction from 26.26 percent to 7.36 percent.

Table 9: Industry wise Employment (ps+ss) in India (in Crores)

Year/Sector	Rural			Urban			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
2018-19									
Agriculture	12.97	6.01	18.98	0.62	0.26	0.88	13.58	6.27	19.86
Mining & quarrying	0.10	0.02	0.11	0.08	0.01	0.08	0.17	0.02	0.20
Manufacturing	1.78	0.76	2.54	2.77	0.81	3.58	4.55	1.57	6.12
Electricity, water, etc	0.10	0.02	0.11	0.15	0.02	0.17	0.25	0.03	0.28
Construction	3.75	0.51	4.26	1.47	0.14	1.60	5.22	0.64	5.86
Trade, hotel & restaurant	2.39	0.36	2.75	3.19	0.46	3.64	5.57	0.82	6.39
Transport, storage & communication	1.32	0.02	1.33	1.54	0.12	1.66	2.86	0.14	2.99
Other services	1.95	0.77	2.72	2.82	1.51	4.33	4.77	2.28	7.05
Total							**36.97**	**11.78**	**48.76**
2019-20									
Agriculture	14.10	8.18	22.28	0.67	0.32	0.99	14.77	8.51	23.27
Mining & quarrying	0.08	0.00	0.08	0.07	0.00	0.07	0.14	0.01	0.15
Manufacturing	1.86	0.79	2.65	2.70	0.88	3.59	4.56	1.67	6.24
Electricity, water, etc	0.13	0.01	0.14	0.19	0.02	0.21	0.31	0.03	0.35
Construction	3.82	0.61	4.42	1.60	0.19	1.79	5.42	0.80	6.22
Trade, hotel & restaurant	2.34	0.40	2.74	3.85	0.88	4.73	6.19	1.28	7.47
Transport, storage & communication	1.37	0.02	1.40	1.61	0.14	1.75	2.99	0.16	3.15
Other services	1.78	0.79	2.57	2.64	1.50	4.13	4.42	2.29	6.71
Total							**38.80**	**14.75**	**53.55**

Source: Estimated using PLFS 2018-19 and 2019-20 Surveys

Policy responses to boost rural livelihood

Incentives for job creation

10.61 Aatmanirbhar Bharat Rojgar Yojana (ABRY) was announced as a part of Aatmanirbhar Bharat 3.0 package to boost the economy, increase the employment generation in post COVID recovery phase and to incentivize creation of new employment along with social security benefits and restoration of loss of employment during COVID-19 pandemic. Under ABRY, the Government of India is crediting for a period of two years both the employees' share (12 percent

of wages) and employers' share (12 percent of wages) of contribution payable or only the employees' share, depending on employment strength of the EPFO registered establishments. Under ABRY, benefits are provided to every establishment registered with EPFO and their new employees (earning wage less than ₹ 15,000 per month) if the establishments take new employees on or after 1.10.2020 and up to 31st March, 2022 or those who lost jobs between 01.03.2020 to 30.09.2020. As on 6th January 2022 benefits have been given to 43,21,837 beneficiaries through 1,22,228 Establishments.

Wage employment

10.62 Allocation to MGNREGS in FY 2021-22 increased to ₹ 73,000 crore, from ₹ 61,500 crore in FY 2020-21. Allocation for FY 2021-22 has been enhanced to Rs 98000 crore so far. In FY 2021-22 over 8.70 crore individuals and 6.10 crore households were provided work so far.

10.63 To boost employment and livelihood opportunities for returnee migrant workers, Garib Kalyan Rojgar Abhiyaan was launched in June 2020. It focused on 25 target-driven works to provide employment and create infrastructure in the rural areas of 116 districts of 6 States with a resource envelope of Rs 50,000 crore.

Boosting Self-employment

10.64 The Deendayal Antyodaya Yojana – National Rural Livelihoods Mission (DAY-NRLM), launched in 2011, is another intervention that seeks to alleviate rural poverty through building sustainable community institutions for the poor. The programme targets to mobilise about 9-10 crore households into Self Help Groups (SHGs). It is to link them to sustainable livelihoods opportunities by building their skills and enabling them to access formal sources of finance, entitlements and services from both public and private sectors. Till December, 2021, 8.07 crore households are mobilized into SHGs. The number of SHG households engaged in farm livelihoods in 2021-22 (till December, 2021) stood at 1.47 crore as against 1.16 crore in 2020-21 and 0.86 crore in 2019-20. The number of SHG members involved in non-farm livelihoods in 2021-22 increased to 1.82 lakhs (till December, 2021) members from 1.55 lakhs in 2020-21 and 0.98 lakhs in 2019-20.

Social protection

10.65 **Pradhan Mantri Shram Yogi Maan-Dhan (PM-SYM) Yojana**, launched on 05.03.2019, is a voluntary and contributory pension scheme for providing monthly minimum assured pension of ₹ 3000 on attaining the age of 60 years. The workers in the age group of 18-40 years having monthly income of ₹ 15000 or less and not a member of EPFO/Employees' State Insurance Corporation (ESIC)/National Pension Scheme (NPS) (Govt. funded) can join the scheme. Under the scheme, 50 percent monthly contribution is payable by the beneficiary and equal matching contribution is paid by the Central Government. Enrolment to the scheme is done through the Common Service Centres. In addition, eligible persons can also self-enroll through visiting the portal www.maandhan.in. As on 17.01.2022, the enrolment under the PM-SYM scheme is 46.09 lakh persons, out of which female enrolment was 23.89 lakh and male enrolment was 22.20 lakh.

10.66 **National Pension Scheme for Traders, Shopkeepers and Self-Employed Persons**, launched on 12.09.2019, is a voluntary and contributory pension scheme for providing monthly minimum assured pension of ₹ 3000 after attaining the age of 60 years. The traders, shopkeepers and self-employed persons in the age group of 18-40 years with an annual turnover not exceeding ₹ 1.5 crore and are not members of EPFO/ESIC/NPS (Govt. funded)/PM-SYM or not an income tax payer, can join the scheme. Under the scheme, 50 percent monthly contribution is payable by the beneficiary and equal matching contribution is paid by the Central Government. Enrolment to the scheme is done through the Common Service Centres, with its network of about 4 lakh Centres across the country. In addition, eligible persons can also self-enroll through visiting the portal www.maandhan.in. As on 17.01.2022, over 48 thousand beneficiaries have been enrolled under the scheme.

Box 4: e-SHRAM Portal

e-SHRAM portal has been launched to create a National Database of Unorganized Workers (UWs). One of the main objectives of this portal is to facilitate delivery of Social Security Schemes to the workers.

This database is seeded with Aadhaar and for age group between 16-59 years. It includes construction workers, migrant workers, gig workers, platform workers, agricultural workers, MGNREGA workers, fishermen, milkmen, ASHA workers, Anganwadi workers, street vendors, domestic workers, rickshaw pullers and other workers engaged in similar other occupations in the unorganised sector.

The data aims at delivery of social security benefits as implemented by Central & State Ministries. It will also ensure portability of the social security and welfare benefits to the migrant and construction workers at their working places. All eligible registered unorganized workers are entitled to get benefit of an accidental insurance cover of ₹ 2.00 Lakhs for a year, free of cost through under Pradhan Mantri Suraksha Bima Yojana (PMSBY). It may also be used for providing assistance to the eligible workers during any national crisis or pandemic-like situations.

As on 18 January 2022, over 22.85 crore workers have been registered on the e-SHRAM portal. The States leading the number of registrations – in decreasing order of share in number of registrations – are Uttar Pradesh (34.9 percent), West Bengal (10.7 percent), Bihar (10.7 percent), Odisha (5.7 percent), Madhya Pradesh (3.5 percent) and Jharkhand (3.5 percent). While agriculture accounts for 11.53 crore registrations, domestic workers and construction workers trail with 2.45 crore and 2.2 crore registrations respectively.

Status of Labour Reforms

10.67 In 2019 and 2020, 29 Central Labour laws were amalgamated, rationalized and simplified into four labour codes, *viz.,* the Code on Wages, 2019 (August, 2019), the Industrial Relations Code, 2020, the Code on Social Security, 2020, and the Occupational Safety, Health & Working Conditions Code, 2020 (September, 2020). The new laws were in tune with the changing labour market trends and at the same time accommodating the minimum wage requirement and welfare needs of the unorganized sector workers, including the self-employed and migrant workers,

within the framework of legislation. The Government has also pre-published the draft Rules for all four Codes.

10.68 As on 11.01.2022, 26 States/UTs have also pre-published the draft rules under the Code on Wages, 22 States/UTs under Industrial Relations Code, 20 States/UTs under Code on Social Security, and 17 States/UTs under OSH & WC Code. (Table 10)

Table 10: Status of Rules by States/UTs under 4 labour Codes (status as on 11.01.2022)

Name of Codes	Name of States which have pre-published the draft rules
The Code on Wages, 2019	Arunachal Pradesh, Assam, Bihar, Goa, Gujarat, Haryana, Himachal Pradesh, Karnataka, Madhya Pradesh, Tripura, Uttarakhand, Uttar Pradesh, Odisha, Manipur, Telangana, Chhattisgarh, Jharkhand, Kerala, Maharashtra, Mizoram, Punjab, Rajasthan, UTs of Jammu & Kashmir, Puducherry, Chandigarh and Government of NCT of Delhi (26)
Industrial Relations Code, 2020	Arunachal Pradesh, Assam, Bihar, Goa, Gujarat, Haryana, Himachal Pradesh, Karnataka, Madhya Pradesh, Tripura, Uttarakhand, Uttar Pradesh, Odisha, Manipur, Telangana, Chhattisgarh, Jharkhand, Maharashtra, Punjab, UTs of Jammu & Kashmir, Chandigarh and Puducherry (22)
Code on Social Security, 2020	Arunachal Pradesh, Assam, Bihar, Goa, Gujarat, Haryana, Himachal Pradesh, Madhya Pradesh, Tripura, Uttarakhand, Uttar Pradesh, Odisha, Manipur, Chhattisgarh, Jharkhand, Maharashtra, Kerala, Punjab, UTs of Jammu & Kashmir and Chandigarh(20)
OSH & WC Code, 2020	Arunachal Pradesh, Bihar, Goa, Haryana, Himachal Pradesh Madhya Pradesh, Uttarakhand, Uttar Pradesh, Odisha, Manipur, Chhattisgarh, Jharkhand, Kerala, Punjab, Gujarat, UTs of Jammu & Kashmir, Chandigarh (17)

Source: Ministry Labour & Employment

HEALTH

Programmes and Schemes for Health Sector

10.69 **Ayushman Bharat Health and Wellness Centres (AB-HWCs):** Vision of Ayushman Bharat is to achieve the universal health coverage. It adopts a continuum of care approach, comprising of two inter-related components. The first component is creation of 1,50,000 Health and Wellness Centres (HWCs) which cover both, maternal and child health services and non-communicable diseases, including free essential drugs and diagnostic services. These AB-HWCs provide Comprehensive Primary Health Care (CPHC), by expanding and strengthening the existing Reproductive & Child Health (RCH) services and Communicable Diseases services and by including services related to Non-Communicable Diseases. It is also envisaged to incrementally add primary healthcare services for mental health, ENT, Opthalmology, Oral health, Geriatric and Palliative health care and Trauma care as well as Health promotion and wellness activities like Yoga. As on 19.01.2022, a total number of 221.99 lakhs Tele-consultations have been provided under e-Sanjeevani tele-consultation platform through functional HWCs of

3017 Hubs & 33,819 Spokes across the country. About 96.27 lakh Wellness Sessions, including Yoga has been conducted at AB-HWCs as on 19.01.2022.

10.70 **Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB-PMJAY):** The second component of Ayushman Bharat is PM-JAY; it is being implemented by the National Health Authority (NHA) in partnership with state governments. The scheme provides a health cover of ₹ 5 lakhs per family per year for secondary and tertiary care hospitalization to over 10.74 crores poor and vulnerable families in the bottom 40 percent of the Indian population. As on 19th January 2022, total of 17.5 crore Ayushman Cards have been issued under AB PM-JAY. A total of 2.73 crore authorized hospital admissions worth ₹ 30673 crore have been provided through a network of approximately 25000 hospitals (approximately 10800 Private and 14300 Public hospitals). A massive information, education and communication drive "Aapke Dwar Ayushman" was carried out in 2021 with the support of grassroot resources such as frontline workers, healthcare workers and Panchayati Raj Institutions. This led to the identification and verification of more than 4 crore people under the scheme.

10.71 **PM-Ayushman Bharat Health Infrastructure Mission (PM-ABHIM)** is a mission to develop the capacities of primary, secondary, and tertiary care health systems, strengthen existing national institutions, and create new institutions, to cater to detection and cure of new and emerging diseases. It is the largest pan-India scheme for public health infrastructure since 2005.

10.72 **Pradhan Mantri Swasthya Suraksha Yojana (PMSSY)** is being implemented to correct regional imbalances in the availability of affordable reliable tertiary healthcare services and to augment facilities for quality medical education in the country. Under PMSSY, construction of 22 new All India Institutes for Medical Science (AIIMS) and 75 Government Medical College up-gradation Projects has been approved and taken up for implementation. Out of this, six (6) AIIMS at Bhopal, Bhubaneswar, Jodhpur, Patna, Raipur and Rishikesh are already fully functional. Another Sixteen (16) AIIMS under various phases have been sanctioned.

10.73 **Ayushman Bharat Digital Mission (ABDM)**, erstwhile National Digital Health Mission (NDHM), announced on 27th September, 2021 with the aim to develop the backbone necessary to support the integrated digital health infrastructure of the country. It is to bridge the existing gap amongst different stakeholders of the healthcare ecosystem through digital highways. Services like the issue of Health ID, Healthcare Professionals Registry (HPR), Health Facility Registry (HFR) and Health Records (PHR) have been initiated.

10.74 **e-Sanjeevani**: In wake of COVID-19 pandemic, Ministry of Health and Family Welfare upgraded eSanjeevani application to enable patient-to-doctor tele-consultation to ensure continuum of care and facilitate health services to all citizens in the confine of their homes free of cost. Telemedicine services have been rolled out in 36 States/UTs. To increase the outreach of health services virtually, e-Sanjeevani OPD application has been integrated with 3.74 lakh Common Service Centres (CSCs) thereby facilitating access to equitable health care in the remotest areas of the country.

Health Outcome Indicators

10.75 India has made significant progress in improving its health outcomes over the last two decades by eliminating polio, guinea worm disease, yaws and maternal and neonatal tetanus[22]. As per latest National Family Health Survey (NFHS)-5, social indicators such as total fertility rate, sex ratio and health outcome indicators viz., infant mortality rate, under-five mortality rate, institutional birth rates have improved over year 2015-16 (Table 11).

Table 11: Progress on Social and Health Indicators

Particulars	NFHS-1 (1992-93)	NFHS-2 (1998-99)	NFHS-3 (2005-06)	NFHS-4 (2015-16)	NFHS-5 (2019-21)
Total Fertility Rate (Children per women)	3.4	2.9	2.7	2.2	2
Sex ratio at birth for children born in the last five years (females per 1,000 males)	-	-	914	919	929
Infant Mortality Rate (per 1000 livebirths)	78.5	67.6	57	40.7	35.2
Under-five Mortality Rate (per 1000 livebirths)	109.3	94.9	74.3	49.7	41.9
Institutional Birth (%)	26.1	33.6	40.8	78.9	88.6
Pregnant women age 15-49 who are anaemic (%)	-	51.8	57.9	50.4	52.2
Population living in households that use an improved sanitation facility (%)	-	17.6	29.1	48.5	70.2
Households using clean fuel for cooking (%)	-	-	25.6	43.8	58.6

Source: Reports of various NFHS rounds.
Note: The figures for institutional birth reported in the NFHS-3 factsheet were based on the last 2 births in the 3 years before the survey to ever-married women. Whereas, since NFHS-4 the figures are being provided for all the births in the 5 years before the survey. So, the figures for NFHS-1 to NFHS-3 are not comparable with NFHS-4 and 5.

Child Health Indicators

10.76 Government has made efforts to address nutrition deficiency among children. POSHAN *Abhiyaan* was launched in March 2018 to achieve improvement in nutritional status of Children from 0-6 years, adolescent girls, pregnant women and lactating mothers. The vision is to achieve reduction in stunting and wasting in children (0-6 years) as well as reduction in anaemia in women, children and adolescent girls. Besides, *Swachh Bharat Mission* (SBM) created sanitation infrastructure and awareness across the country. Moreover, special vaccination drives like Mission Indradhanush, Intensified Mission Indradhanush, Gram Swaraj Abhiyaan (GSA), Extended GSA reached the left out and drop out children from vaccination.

[22]Health System for A New India: Building Blocks. NITI Aayog. 2019

10.77 NFHS-5 also shows that not only services are reaching to the public but the intended outcomes have also improved. All child nutrition indicators have also improved at all India level. Under Five Mortality Rate (U5MR) has declined from 49.7 in 2015-16 to 41.9 in 2019-21. Infant Mortality Rate (IMR) has declined from 40.7 per 1000 live births in 2015-16 to 35.2 per 1000 live births in 2019-21. Stunting has declined from 38 percent in 2015-16 to 36 percent in 2019-21. Wasting has also declined from 21 percent in 2015-16 to 19 percent in 2019-21. And, underweight declined from 36 percent in 2015-16 to 32 percent in 2019-21. State wise U5MR, IMR and neonatal mortality rates are shown in Table 12.

Table 12: State wise Child Mortality Indicators

States/UTs	Infant Mortality Rate (per 1000 live-births)		Under Five Mortality Rate (per 1000 livebirths)		Neo-natal Mortality Rate (deaths per 1000 live births)	
	NFHS-4 (2015-16)	NFHS-5 (2019-21)	NFHS-4 (2015-16)	NFHS-5 (2019-21)	NFHS-4 (2015-16)	NFHS-5 (2019-21)
All India	40.7	35.2	49.7	41.9	29.5	24.9
Andhra Pradesh	34.9	30.3	40.8	35.2	19.9	23.6
Arunachal Pradesh	22.9	12.9	32.9	18.8	7.7	11.8
Assam	47.6	31.9	56.5	39.1	22.5	32.8
Bihar	48.1	46.8	58.1	56.4	34.5	36.7
Delhi	31.2	24.5	42.2	30.6	17.8	17.5
Goa	12.9	5.6	12.9	10.6	5.6	12.9
Gujarat	34.2	31.2	43.5	37.6	21.8	26.8
Haryana	32.8	33.3	41.1	38.7	21.6	22.1
Himachal Pradesh	34.3	25.6	37.6	28.9	20.5	25.5
Jammu and Kashmir	32.4	16.3	37.6	18.5	9.8	23.1
Karnataka	26.9	25.4	31.5	29.5	15.8	18.5
Kerala	5.6	4.4	7.1	5.2	3.4	4.4
Madhya Pradesh	51.2	41.3	64.6	49.2	29.0	36.9
Maharashtra	23.7	23.2	28.7	28.0	16.5	16.2
Manipur	21.7	25.0	25.9	30.0	17.2	15.6
Meghalaya	29.9	32.3	39.6	40.0	19.8	18.3
Mizoram	40.1	21.3	46.0	24.0	11.4	11.2
Nagaland	29.5	23.4	37.5	33.0	10.2	16.5
Odisha	39.6	36.3	48.1	41.1	27.0	28.2
Punjab	29.2	28.0	33.2	32.7	21.8	21.2
Rajasthan	41.3	30.3	50.7	37.6	20.2	29.8
Sikkim	29.5	11.2	32.2	11.2	5.0	20.8
Tamil Nadu	20.2	18.6	26.8	22.3	12.7	14.0
Tripura	26.7	37.6	32.7	43.3	22.9	13.2
Uttar Pradesh	63.5	50.4	78.1	59.8	35.7	45.1
West Bengal	27.5	22.0	31.8	25.4	15.5	22.0
Chhattisgarh	54.0	44.3	64.3	50.4	32.4	42.1
Jharkhand	43.8	37.9	54.3	45.4	28.2	33.0

Uttarakhand	39.7	39.1	46.5	45.6	32.4	27.9
Telangana	27.7	26.4	31.7	29.4	16.8	20.0
Andaman and Nicobar (UT)	9.8	20.6	13.0	24.5	7.3	12.3
Dadra and Nagar Haveli & Daman Diu (UT)	33.4	31.8	39.9	37.0	13.9	21.4
Lakshadweep (UT)	27.0	0.0	30.2	0.0	0.0	23.3
Puducherry (UT)	15.7	2.9	16.2	3.9	5.8	2.3
Ladakh (UT)		20.0		29.5		29.5

Source: NFHS-5, Ministry of Health and Family Welfare
Note: In NFHS-5, Jammu & Kashmir is Union Territory excluding Ladakh

Life Expectancy

10.78 Report on 'Sample Registration based System (SRS) based Abridged Life Tables 2014-18' provides estimates of average longevity at various age groups[23] Latest estimates of Expectation of life at birth for India are available for 2014-18. Life expectancy at birth was 69.4 years for the period 2014-18; it has increased by 0.4 years from 2013-17. It varies widely across states; ranging from the lowest of 65.2 years in Chhattisgarh to the highest at 75.3 years in Kerala and Delhi. It is higher in urban areas (72.6 years) than in rural areas (68.0 years). Increase from 2013-17 is higher for rural (of 0.3 years) than increase in urban areas (0.2 years). The gap between the rural and urban life expectancy has also narrowed down significantly from 1970-75 to 2014-18. Females are expected to live longer (70.7 years) compared to males (68.2 years). In 2014-18 when compared to 2013-17, females are expected to live longer in most States/UTs both across the rural and urban areas, except for Bihar and Jharkhand.

Total Fertility rate

10.79 Latest NFHS-5 shows that Total Fertility Rate (TFR), an average number of children per women, has further come down to 2 in 2019-21 from 2.2 in 2015-16 (Table 13). The total fertility rate has even come down below the replacement level of fertility (2.1 children per woman) in the country. Further, in all the States/UTs except for Manipur, Meghalaya, Bihar, Jharkhand and Uttar Pradesh the replacement level of fertility has been achieved. Increasing use of contraceptives especially the modern methods, better family planning, and girl education possibly have contributed to the decline in the fertility rates. Use of family planning methods has increased from 53.5 percent in 2015-16 to 66.7 percent in 2019-21. Access to better health infrastructure could be another factor. Significant improvement is seen in the infrastructure and services reaching to the public, such as institutional delivery. Institutional delivery has increased to 88.6 percent in 2019-21 compared to 78.9 percent in 2015-16.

Sex Ratio

10.80 Sex ratio, number of females per 1000 males, in the total population has risen from 991 females in 2015-16 (NFHS-4) to 1020 in 2019-21 (NFHS-5). More importantly, sex ratio at birth, female children per 1000 male children born in the last five years, has grown from 919 in 2015-16 to 929 in 2019-21. To prevent gender biased sex selective elimination, to ensure

[23]Office of The Registrar General & Census Commissioner, India Ministry of Home Affairs Government Of India: https://censusindia.gov.in/Vital_Statistics/SRS_Life_Table/SRS%20based%20Abridged%20Life%20Tables%202014-18.pdf

survival and protection of the girl child, and to ensure education and participation of the girl child, government has made specific interventions through *Beti Bachao Beti Padhao* (BBBP) Scheme. Sex ratio at birth for children born in the last five years has improved in 2019-21 from 2015-16 in all states (Table 13), except for Himachal Pradesh, Bihar, Jharkhand, Chhattisgarh, Odisha, Maharashtra, Tamil Nadu, Kerala, Meghalaya, Goa and Nagaland

Table 13: State-wise Total Fertility Rate and Sex Ratio

States/UTs	Total Fertility Rate (Children per women)		Sex Ratio at Birth for children born in the last five years (females per 1000 males)	
	NFHS-4 (2015-16)	NFHS-5 (2019-21)	NFHS-4 (2015-16)	NFHS-5 (2019-21)
All India	2.2	2.0	919	929
Andhra Pradesh	1.8	1.7	914	934
Arunachal Pradesh	2.1	1.8	926	979
Assam	2.2	1.9	929	964
Bihar	3.4	3.0	934	908
Delhi	1.8	1.6	812	923
Goa	1.7	1.3	966	838
Gujarat	2.0	1.9	906	955
Haryana	2.1	1.9	836	893
Himachal Pradesh	1.9	1.7	937	875
Jammu and Kashmir	2.0	1.4	923	976
Karnataka	1.8	1.7	910	978
Kerala	1.6	1.8	1,047	951
Madhya Pradesh	2.3	2.0	927	956
Maharashtra	1.9	1.7	924	913
Manipur	2.6	2.2	962	967
Meghalaya	3.0	2.9	1,009	989
Mizoram	2.3	1.9	949	969
Nagaland	2.7	1.7	953	945
Odisha	2.1	1.8	932	894
Punjab	1.6	1.6	860	904
Rajasthan	2.4	2.0	887	891
Sikkim	1.2	1.1	809	969
Tamil Nadu	1.7	1.8	954	878
Tripura	1.7	1.7	969	1,028
Uttar Pradesh	2.7	2.4	903	941
West Bengal	1.8	1.6	960	973
Chhattisgarh	2.2	1.8	977	960
Jharkhand	2.6	2.3	919	899
Uttarakhand	2.1	1.9	888	984
Telangana	1.8	1.8	872	894
Andaman and Nicobar (UT)	1.4	1.3	891	941
Chandigarh (UT)	1.6	1.4	981	838

Dadra and Nagar Haveli & Daman Diu (UT)	2.1	1.8	983	817
Lakshadweep (UT)	1.8	1.4	905	1,051
Puducherry (UT)	1.7	1.5	843	959
Ladakh (UT)		1.3		1125

Source: NFHS-5, Ministry of Health and Family Welfare

DRINKING WATER AND SANITATION

Jal Jeevan Mission (JJM)

10.81 Rolled out in August 2019, JJM envisioned to provide adequate safe drinking water through individual household tap connections to all households in rural India by 2024. The goal of the Mission is to enable every rural household to get assured supply of potable-piped water at a service level of 55 litre per capita per day (lpcd) regularly on long-term basis and also to ensure functionality of the tap water connections. The mission will benefit more than 19 crore rural families or more than 90 crore rural population, bridge rural – urban divide, improve quality of life, enhance 'ease of living' and public health. Special features of Jal Jeevan Mission are[24]:

- Shift of focus for water supply from 'habitations (hand pumps, public standposts, etc. at a reasonable distance) to households' (functional tap in house).
- Not limited only to creation of water supply infrastructure, focus is on assured supply of potable water –'service delivery' & 'functionality' –to every home.
- Local village community owns, operates & maintains water supply system to ensure assured water supply to every home.
- Central role of women: minimum 50 percent members of Village Water & Sanitation Committee (VWSC)/ Pani Samitis are to be women and proportionate representation of weaker sections of society.
- Priority to assured supply of potable-piped water in schools, anganwadi centres and ashramshalas.
- Priority to villages/ habitations having water quality problems.
- Surveillance of water quality: training to five persons in every village, preferably women, on using Field Test Kits for testing of water quality at village level. Water quality testing laboratories opened to public to test samples on paying nominal charges.
- Long-term drinking water security: Village Action Plan (VAP) focusing on water sources, supply systems, grey water reuse and operation & maintenance of these systems for long term and regular tap water supply in every home.
- Making water everyone's business by participation; raising awareness, community mobilization and handholding.

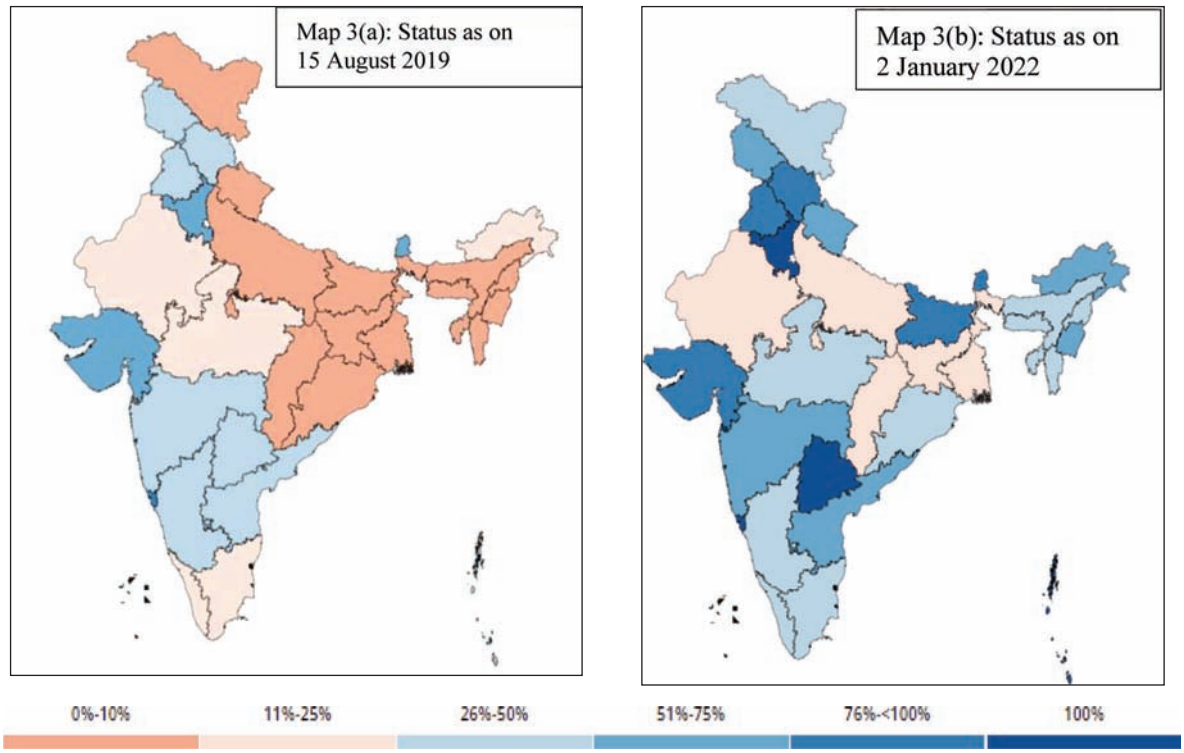
[24]Reforms in Rural Drinking Water Supply (Decentralized, demand-driven, community-managed water supply programme).

- Technological interventions for transparency and accountability (i) IMIS to capture physical and financial progress; (ii) 'Dashboard'; (iii) 'Mobile App'; (iv) Sensor-based IoT solution for measurement and monitoring water supply for quantity, quality and regularity in villages on real time basis; (v) geo-tagging every asset created; (vi) Linkage of tap connection with Aadhar number; (vii) transaction through Public Finance Management System (PFMS);
- Inventive to states: incentive grant linked o high functionality of tap water connections.

10.82 Priority is for quality affected areas, villages in drought prone and desert areas, Sansad Adarsh Gram Yojana (SAGY) villages, to provide functional tap connection to Schools, Anganwadi centres, GP buildings, Health centres, wellness centres and community buildings. Total outlay for the mission is Rs 3.60 lakh crores.

10.83 In 2019, out of about 18.93 crore families in rural areas, about 3.23 crore (17 percent) rural families had tap water connections in their homes. As on 2 January, 2022, 5,51,93,885 households have been provided with tap water supply since the start of the mission. Six states/ Uts have achieved the coveted status of 100 percent households with tap water supply, namely Goa, Telangana, A & N Islands, Puducherry, Dadra and Nagar Haveli and Daman and Diu and Haryana. Equivalently, 83 districts, 1016 blocks, 62,749 panchayats and 1,28,893 villages have achieved the 100 percent households with tap water supply status. The two maps (Map 3(a) Status as on 15 August 2019 and Map 3(b) Status as on 2 January 2022) show the impressive rate of progress in providing FHTC to households across the country.

Map 3: State wise progress in providing FHTC to households across the country



Source: Ministry of Jalshakti: https://ejalshakti.gov.in/jjmreport/JJMIndia.aspx

Swachh Bharat Mission (Grameen) [SBM-G]

10.84 Rural sanitation has made tremendous progress under SBM-G since its inception on 2nd October, 2014. Since inception till 28.12.2021, more than 10.86 crore toilets have been built in rural India.

10.85 Open Defecation Free (ODF) Plus under Phase II of SBM(G) is being implemented from 2020-21 to 2024-25 with a goal of making all the villages Open Defecation Free (ODF) through convergence between different verticals of financing and various schemes of Central and State Governments. Focus of phase II with a total outlay of Rs 1,40,881 crores is ODF sustainability and Solid & Liquid Waste Management. During 2021-22 (as on 25.10.2021) a total of 7.16 lakh Individual household latrines for new emerging households and 19,061 Community Sanitary Complexes have been constructed. Also, 2,194 villages have been declared as ODF Plus.

10.86 As per the recently released findings of the fifth round of the National Family Health Survey, 2019-21 (NFHS-5), population living in households that use an improved sanitation facility has increased from 48.5 percent in 2015-16 to 70.2 percent in 2019-21. The proportion of population living in households using an improved sanitation facility has increased in 2019-21 compared to 2015-16 (Table 14), in all states except Sikkim. Despite significant improvement, the use of improved sanitation facilities in states such as Bihar (49 percent), Jharkhand (57 percent), Odisha (60 percent), Manipur (65 percent), Madhya Pradesh (65 percent), West Bengal (68 percent), Assam (69 percent) and Uttar Pradesh (69 percent) have remained below the national average of 70 percent in 2019-21.

10.87 **Electricity and Clean Cooking Fuel:** Government has made efforts to increase access to clean fuel for cooking through the *Pradhan Mantri Ujjwala Yojana* (PMUY). As per NFHS-5, 58.6 percent of households were using clean fuel for cooking in 2019-21, a significant increase from 43.8 percent in 2015-16. Proportion of household using clean fuel for cooking, however, varies across states (Table 14), where Chhattisgarh, Odisha, Jharkhand, Bihar, Uttar Pradesh, Rajasthan, Madhya Pradesh, Assam, West Bengal, Tripura, Nagaland, Arunachal Pradesh, Himachal Pradesh, and Meghalaya were below the national average of 58.6 percent in 2019-21.

10.88 Government has made efforts through schemes such as SAUBHAGYA Yojana to ensure 'Power for all.' As per latest NFHS, households with electricity have increased from 88 percent in 2015-16 to 96.8 percent in 2019-21.

Table 14: State wise proportion of households using sanitation facility and clean fuel for cooking (%)

States/UTs	Population living in households that use an improved sanitation facility (%)		Households using clean fuel for cooking (%)	
	NFHS-4 (2015-16)	NFHS-5 (2019-21)	NFHS-4 (2015-16)	NFHS-5 (2019-21)
All India	48.5	70.2	43.8	58.6
Andhra Pradesh	77.3	54.4	83.6	62.0
Arunachal Pradesh	82.9	61.6	53.2	45.0

Assam	68.6	49.0	42.1	25.1
Bihar	49.4	26.5	37.8	17.8
Delhi	75.1	81.1	97.9	98.9
Goa	87.9	78.7	96.5	84.1
Gujarat	74.0	63.6	66.9	52.6
Haryana	85.0	80.6	59.5	52.2
Himachal Pradesh	81.8	72.3	51.7	36.7
Jammu and Kashmir	75.7	53.8	69.2	57.5
Karnataka	74.8	57.8	79.7	54.7
Kerala	98.7	98.2	72.1	57.4
Madhya Pradesh	65.1	34.8	40.1	29.6
Maharashtra	72.0	52.3	79.7	59.9
Manipur	64.9	52.6	70.4	42.1
Meghalaya	82.9	61.4	33.7	21.8
Mizoram	95.3	84.4	83.8	66.1
Nagaland	87.7	76.7	43.0	32.8
Odisha	60.5	30.0	34.7	19.2
Punjab	86.6	82.7	76.7	65.9
Rajasthan	71.1	46.1	41.4	31.8
Sikkim	87.3	89.7	78.4	59.1
Tamil Nadu	72.6	52.5	82.9	73.0
Tripura	73.6	63.7	45.3	31.9
Uttar Pradesh	68.8	36.4	49.5	32.7
West Bengal	68.0	52.8	40.2	27.8
Chhattisgarh	76.8	34.8	33.0	22.8
Jharkhand	56.7	25.0	31.9	18.9
Uttarakhand	78.8	66.2	59.2	51.0
Telangana	76.2	52.3	91.8	67.3
Andaman and Nicobar (UT)	75.4	88.0	63.5	79.8
Chandigarh (UT)	83.7	85.0	93.9	95.8
Dadra and Nagar Haveli & Daman Diu (UT)	44.4	65.8	63.1	79.9
Lakshadweep (UT)	99.8	99.6	59.4	31.8
Puducherry (UT)	64.8	84.9	84.8	92.3
Ladakh (UT)		42.3		76.3

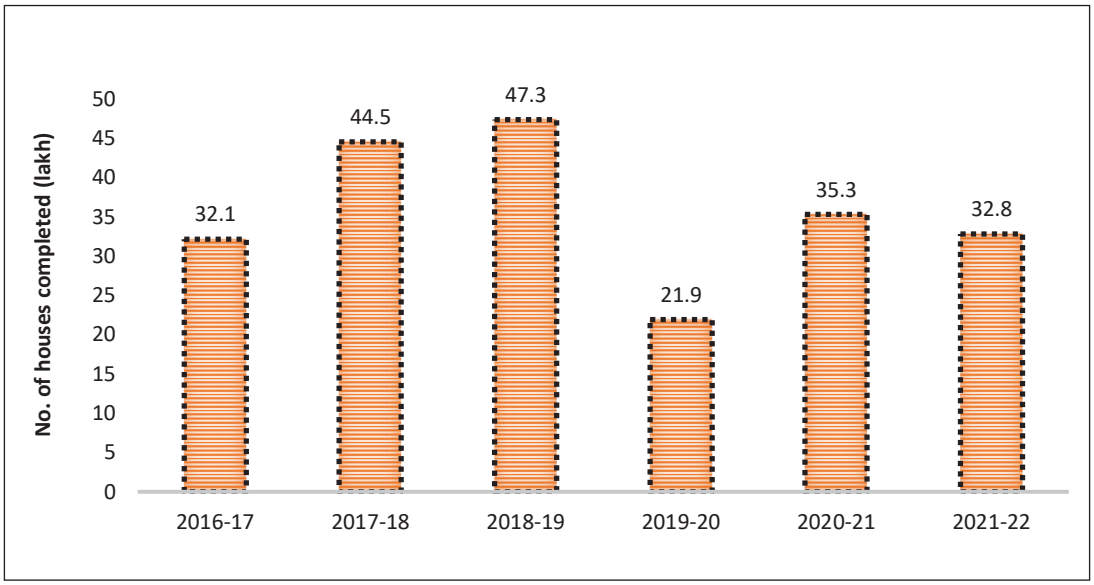
RURAL DEVELOPMENT

Pradhan Mantri Awaas Yojana-Gramin (PMAY-G)

10.89 PMAY-G, launched on 20th November 2016, envisages 'Housing for All by 2022' through a robust monitoring mechanism and improved scheme architecture. It aims to provide assistance for construction of 2.95 crore houses. In first phase from 2016-17 to 2018-19, one crore houses were taken up. Under phase II, assistance is being provided for construction of remaining 1.95 crore houses in 2019-20 to 2021-22. Through convergence with other Government Schemes, it also addresses basic needs such as construction of the toilet, piped drinking water, electricity connection, LPG gas connection and 90/95 person-days of unskilled labour from MGNREGS.

10.90 As on 18th January 2022, 2.17 crore houses have been sanctioned and 1.69 crore houses completed against a target of 2.63 crore houses till 2021-22. Under PMAY-G, landless beneficiaries are accorded highest priority in allotment of houses. As on 18th January, 2022, the States/UTs have identified 4,46,058 landless beneficiaries in the Permanent Wait List of PMAY-G, out of which 2,05,847 (46 percent) have been provided with land by the concerned States/UTs. Performance of the scheme was impressive during from 2016-17 to 2021-22 (as on 18th January, 2022) is given in Figure 16.

Figure 16: Pradhan Mantri Awaas Yojana-Gramin (PMAY-G)



Source: Dept. of Rural Development
Note: 2021-22 data is as on 18 January 2022

Pradhan Mantri Gram Sadak Yojana (PMGSY)

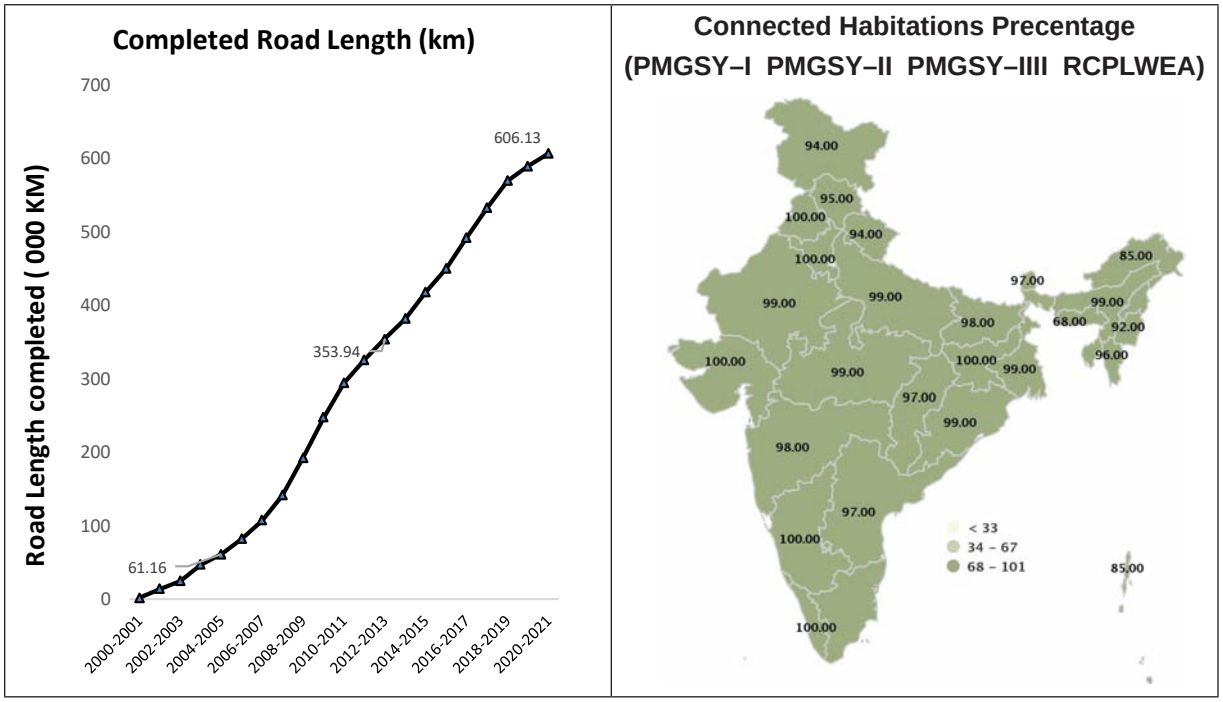
10.91 The primary objective of the PMGSY is to provide connectivity, by way of an all-weather road with necessary culverts and cross-drainage structures, which is operable throughout the year, to eligible unconnected habitations in rural areas.

10.92 As on 18.01.2022, a total of 1,82,506 roads measuring 7,82,844 km and 9,456 Long Span Bridges (LSBs) have been sanctioned and 1,66,798 roads measuring 6,84,994 km and 6,404 LSBs have been completed (Figure 17).

10.93 World Bank (2019) in an evaluation of the scheme found that PMGSY roads had a positive impact on human capital formation in rural India. Children in middle or high school had 0.7 more years of schooling in 2017; share of babies delivered at home decreased by 30 percent in connected habitations; vaccination among children under the age of four increased by 15 percentage points, with boys and girls benefiting equally.

Scheme	Launched (extended)	Objectives
PMGSY-I	2000 (up to Sept, 2022)	● To provide connectivity to eligible unconnected habitations with a population of 500+ in plain areas and 250+ in North-Eastern and Himalayan states, , Desert areas, Tribal (Schedule V) areas and selected tribal and backward districts as identified by the Ministry of Home Affairs/ Planning Commission as per Census, 2001 ● Additional relaxation given to connect habitations with population of 100-249 (Census 2001) in the Left-wing Extremism Affected blocks
PMGSY-II	2013 (upto Sept, 2022)	● Envisaged consolidation of 50,000 Km of existing rural road network.
RCPLWEA	2016 (up to March, 2023)	● To improve the road connectivity in 44 worst affected LWE districts and some adjoining districts in 9 States, viz. Andhra Pradesh, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Maharashtra, Odisha, Telangana and Uttar Pradesh
PMGSY-III	2019 (up to March, 2025)	● Consolidation of 1,25,000 Km existing through routes and Major rural links connecting habitations, inter-alia, to Gramin Agricultural Markets, Higher Secondary Schools and Hospitals.

Figure 17: Pradhan Mantri Gram Sadak Yojana



Source: Ministry of Rural Development: http://omms.nic.in/dbweb/Home/TimeSeries; (downloaded on 27 January 2022)
Note: Road Connectivity Project for Left Wing Extremism Affected Areas (RCPLWEA)

Multidimensional Poverty

10.94 Using NFHS-4 (2015-16) report, in line with global Multidimensional Poverty Index (MPI), NITI Aayog prepared Multidimensional Poverty Index at the national, for all states and districts of India. It will enable measuring deprivation across twelve indicators at national, States and districts level. In 2015-16, 25 percent households were found to be multidimensional poor in India. Among states, Bihar had largest (51.91%) multidimensional poor households, followed by Jharkhand (42.16%), Uttar Pradesh (37.79%), Madhya Pradesh (36.65%), Assam (32.67%) and Rajasthan (39.46%). Since the MPI index is based on NFHS-4 data of 2014-15, it may serve as the baseline for measuring deprivation in future studies.

11 CHAPTER

Tracking Development through Satellite Images & Cartography

An important theme of this year's Economic Survey is the use of new forms of data and information for tracking economic activity and development. Chapter 1 looked at the use of high-frequency data for the real-time management of an economy through uncertain times. This chapter looks at the use of another kind of data – geo-spatial data and cartographic techniques – to track, compare and represent longer term developments. Geospatial maps not only lets users visualize data but also helps users to better understand trends, relationships and patterns. The use of maps is not entirely new and previous Economic Surveys have used them for years, but there is now a plethora of information from satellites, drones, mobile phones and other sources. Moreover, there has also been a dramatic improvement in cartographic technology that allows for better representation of the information. This chapter illustrates some of the interesting ways of depicting geospatial data.

Using satellite images, India's night-time luminosity is compared between 2012 and 2021 in Figures 1A and 1B. Night-time luminosity provides an interesting representation of the expansion of electricity supply, the geographical distribution of population and economic activity, urban expansion as well as growth of ribbon developments between urban hubs. Similarly, using geospatial and cartographic techniques, the subsequent maps show the extent of physical as well as financial infrastructure development in India. This includes expansion of national highways, airports, commercial bank branches, metros, etc. The maps in Figure 5A & 5B depict change in net sown area of India over the last 15 years. The maps have been created by combining satellite data over the course of a 12 month period in each year.

The images in Figures 6A & 6B compare the Kharif crop cycle in Moga district, Punjab during 2005 and 2021. The images show that Kharif sowing cycle has shifted ahead by around two-to-three weeks causing the Kharif harvest to almost coincide with Rabi sowing in November. The closing of the gap is a likely factor that encourages farmers to burn stubble and may be related to restrictions on early transplanting of Kharif paddy. These restrictions were introduced in 2009 in order to reduce pumping of ground-water but may have had the unintended consequence of damaging air quality.

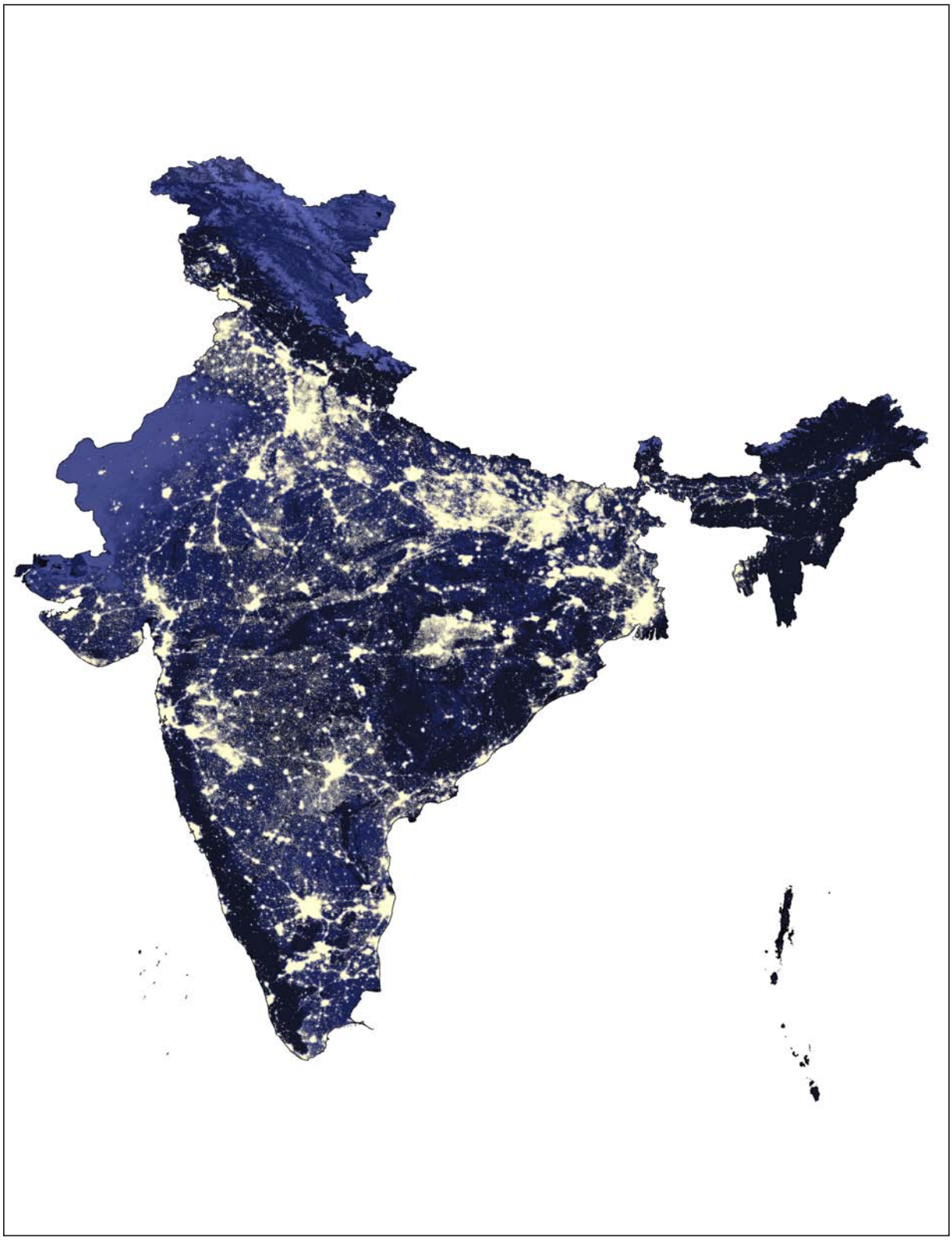
Satellite imagery is used to show annual water storage cycle at Stanley Reservoir, Tamil Nadu in Figure 7A & 7B. Using new geo-spatial methods, population density of select Indian cities is compared over time, showing the extent of urban expansion in Delhi-NCR and Bangalore between 2001 and 2021. Finally, using satellite imagery, Figures 18A, 18B, 19A & 19B illustrate wasteland redeployment in Andhra Pradesh and Gujarat.

While this chapter has restricted itself to static two-dimensional images due to practical considerations of publication, readers will be aware that dynamic and multi-dimensional cartography is now commonplace for every-day activities like ordering a taxi or looking for an address.

Figure 1A: India Night-time Luminosity, 2012

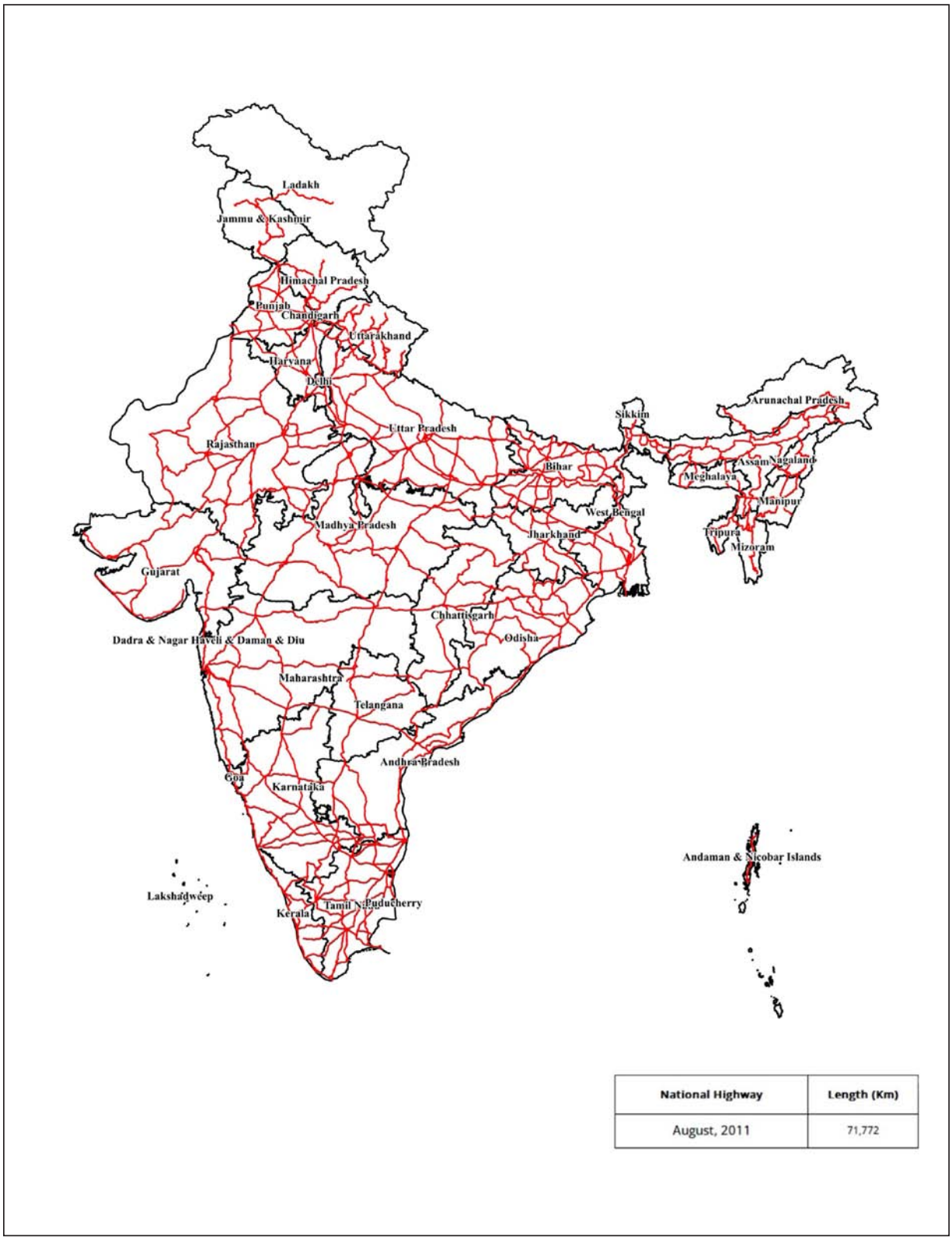
Source: NASA, MapmyIndia

Figure 1B: India Night-time Luminosity 2021



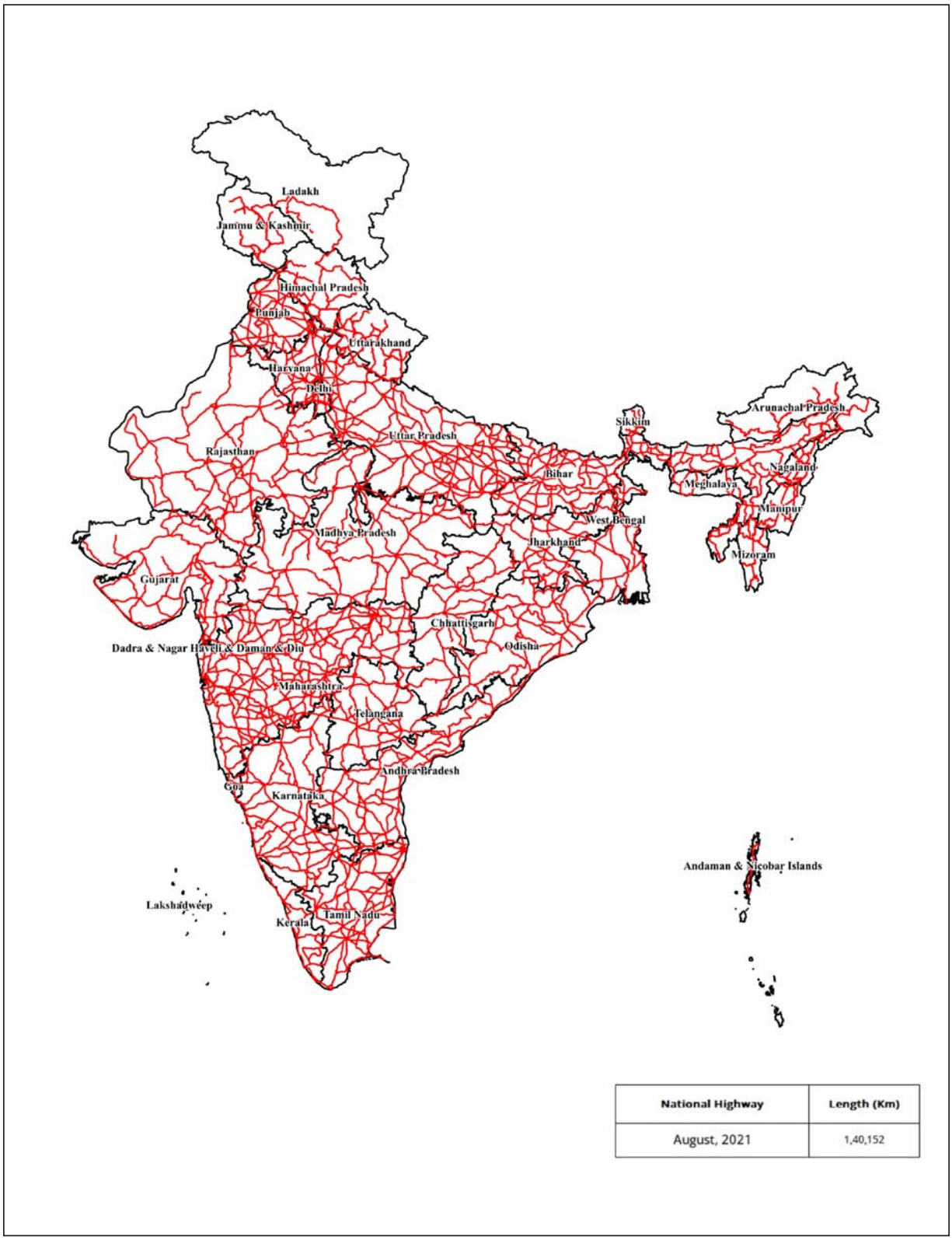
Source: NASA, MapmyIndia

Figure 2A: India's National Highway Network (As of August 2011)



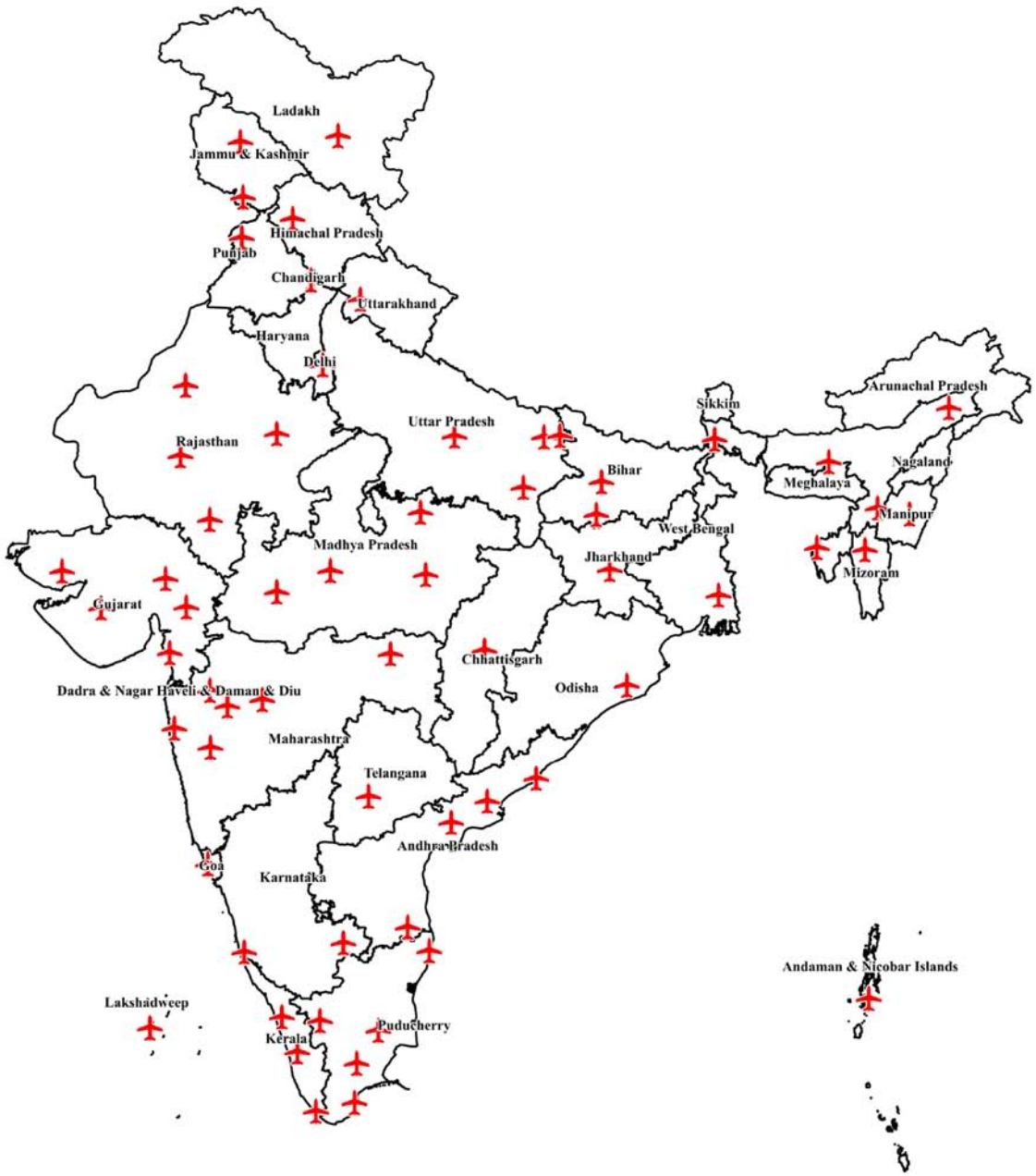
Source: Ministry of Road Transport and Highways, MapmyIndia

Figure 2B: India's National Highway Network (As of August 2021)



Source: Ministry of Road Transport and Highways, MapmyIndia

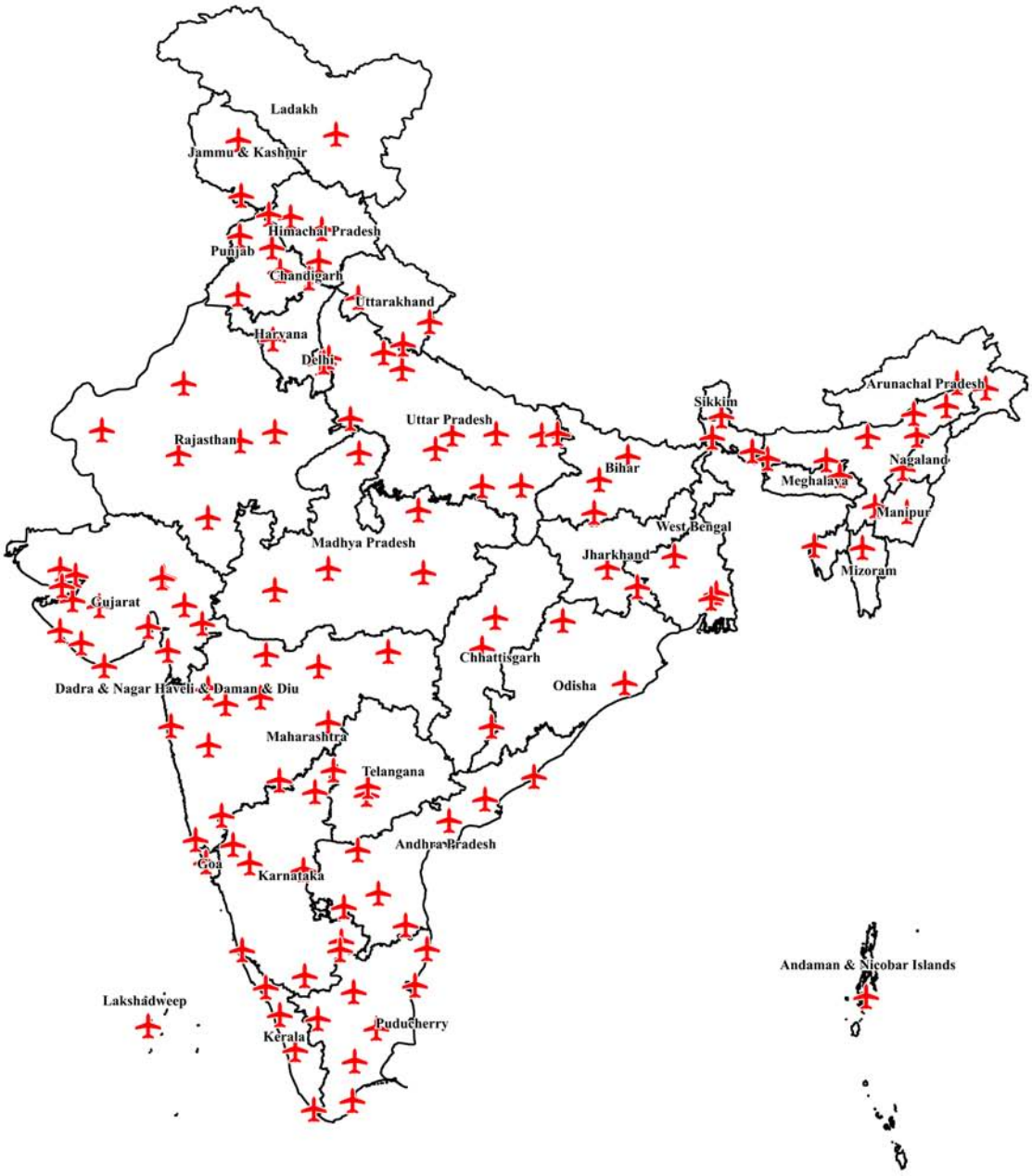
Figure 3A: Number of Operationalised Airports in India (As of November 2016)



Year	No. of Operationalised Airports (Pre- UDAN)
November, 2016	62

Source: Ministry of Civil Aviation, MapmyIndia

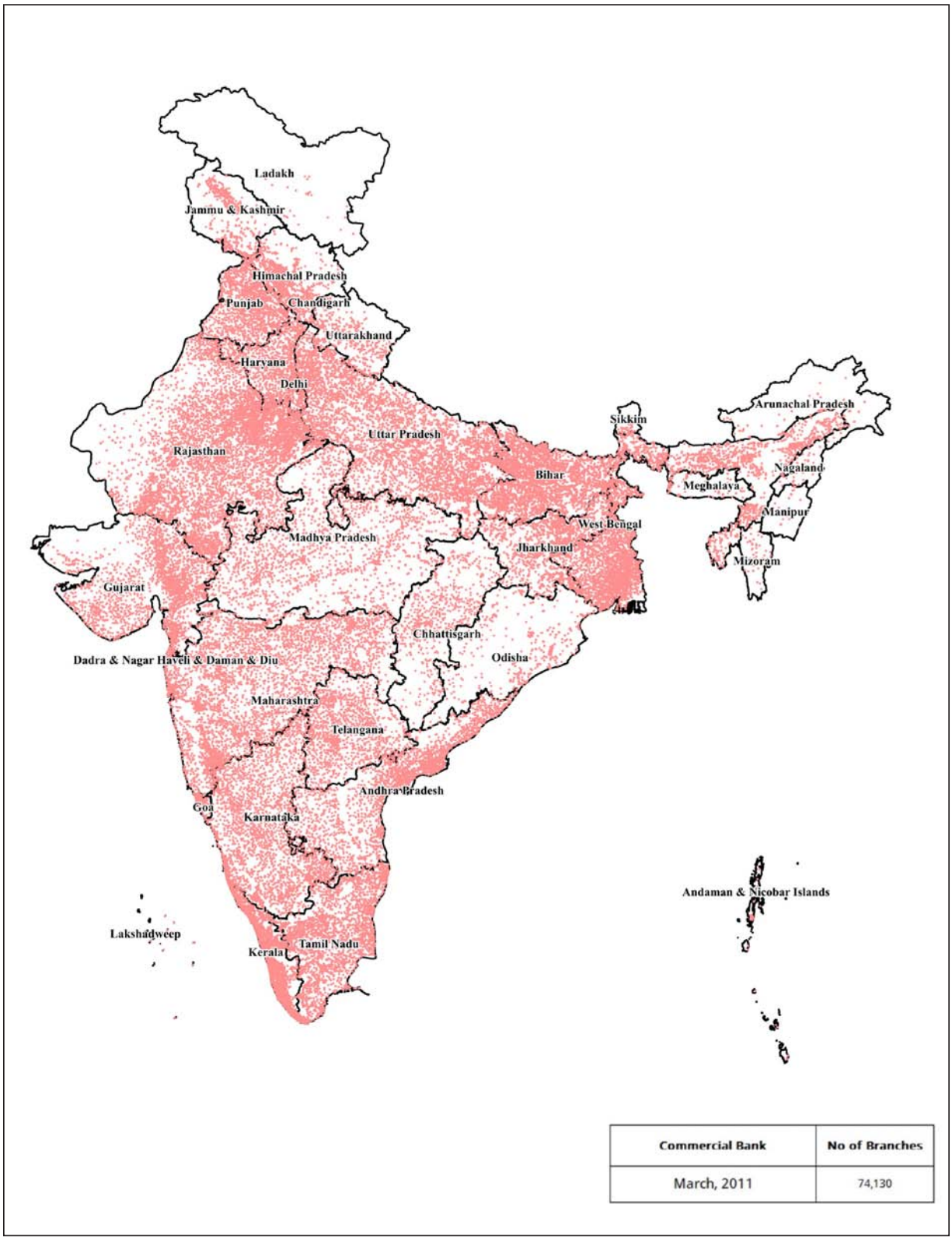
Figure 3B: Number of Operationalised Airports in India (As of December 2021)



Year	No. of Operationalised Airports (Post- UDAN)
December, 2021	130

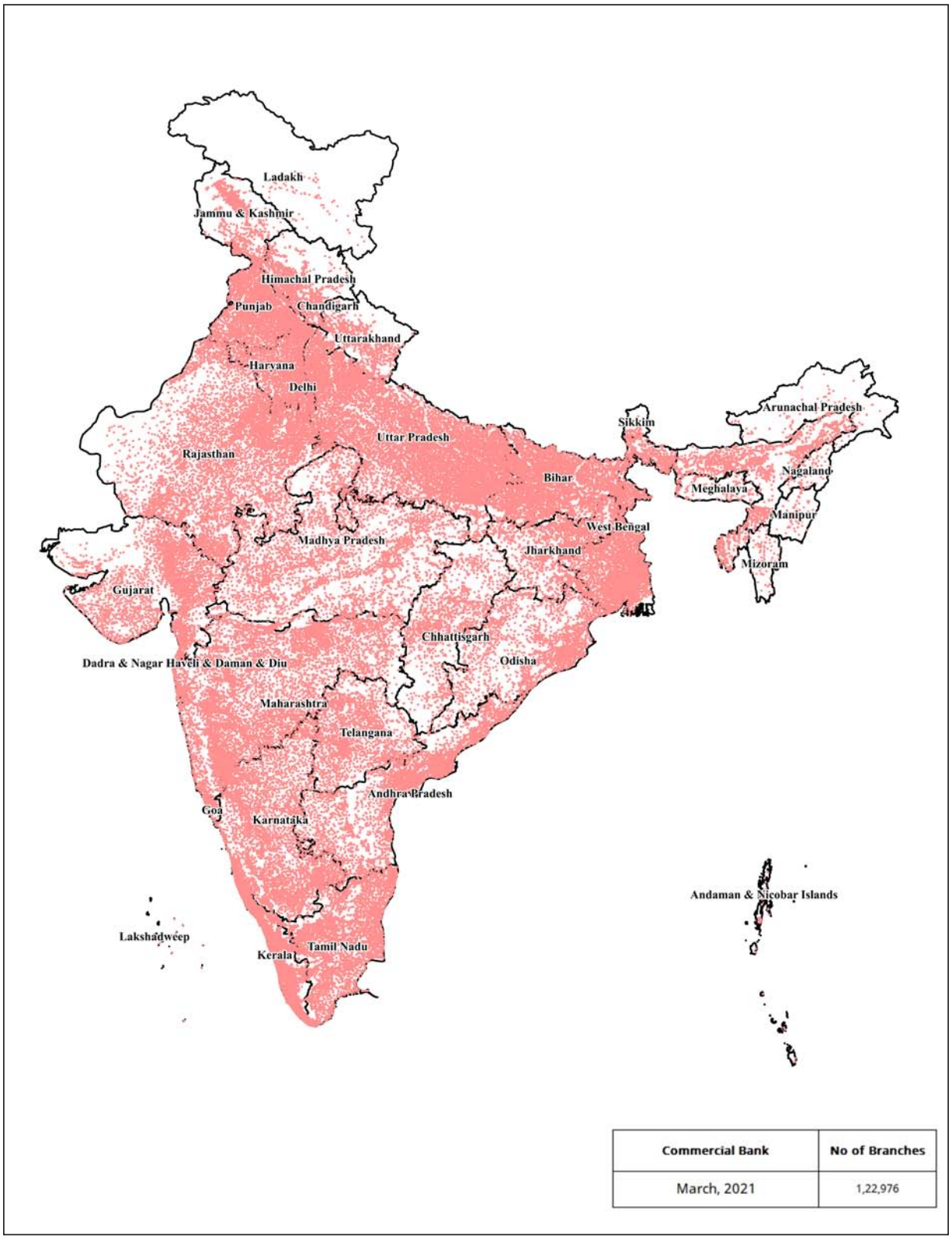
Source: Ministry of Civil Aviation, MapmyIndia

Figure 4A: Spread of Commercial Bank Branches in India (As of March 2011)



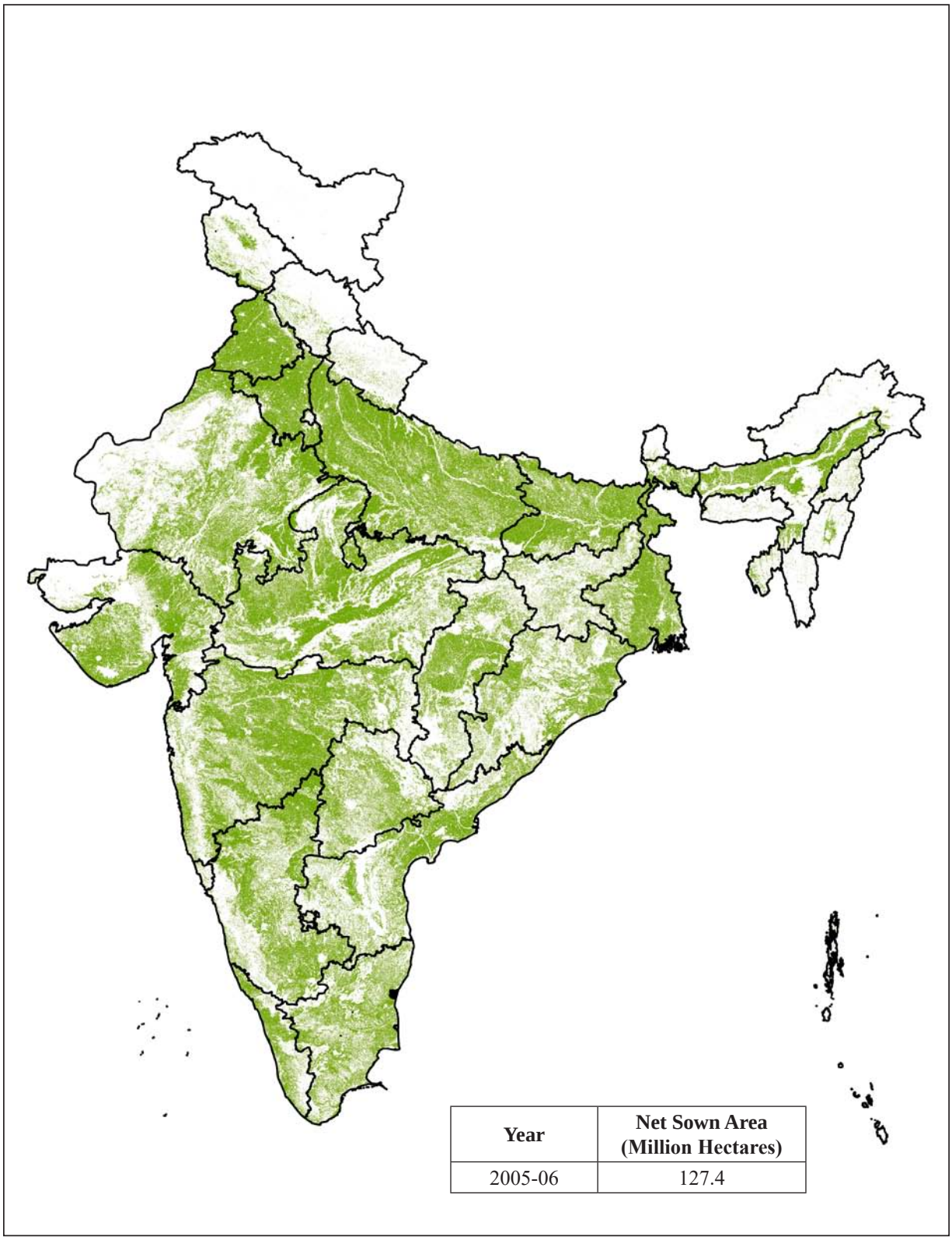
Source: Reserve Bank of India, MapmyIndia

Figure 4B: Spread of Commercial Bank Branches in India (As of March 2021)



Source: Reserve Bank of India, MapmyIndia

Figure 5A: Net Sown Area in India, 2005-06

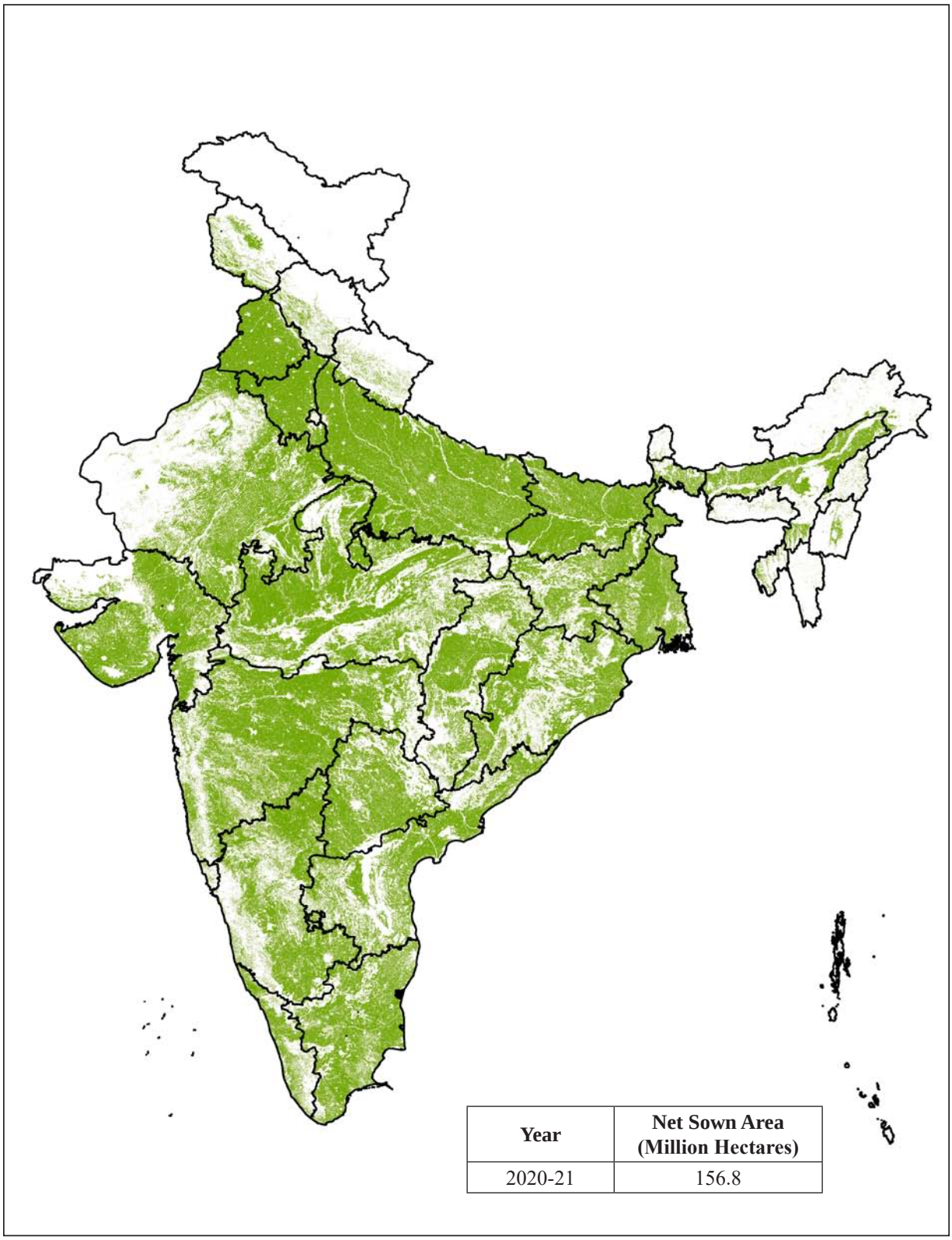


Year	Net Sown Area (Million Hectares)
2005-06	127.4

Source: Indian Space Research Organisation (ISRO)

Note: The net sown area includes the extent of crops, medicinal crops, plantations, vegetables, floriculture and orchards during Kharif, Rabi and Zaid seasons. It is estimated using multi-temporal AWiFS sensor data aboard Resourcesat-1/2 satellites

Figure 5B: Net Sown Area in India, 2020-21

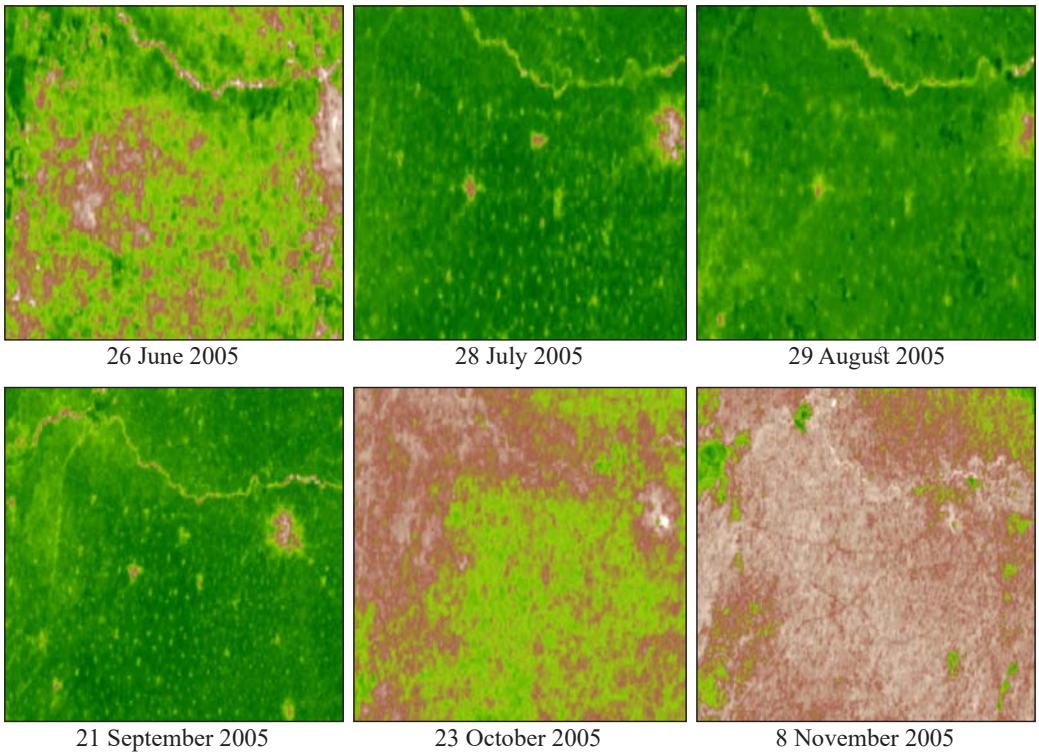


Year	Net Sown Area (Million Hectares)
2020-21	156.8

Source: India Space Research Organisation (ISRO)

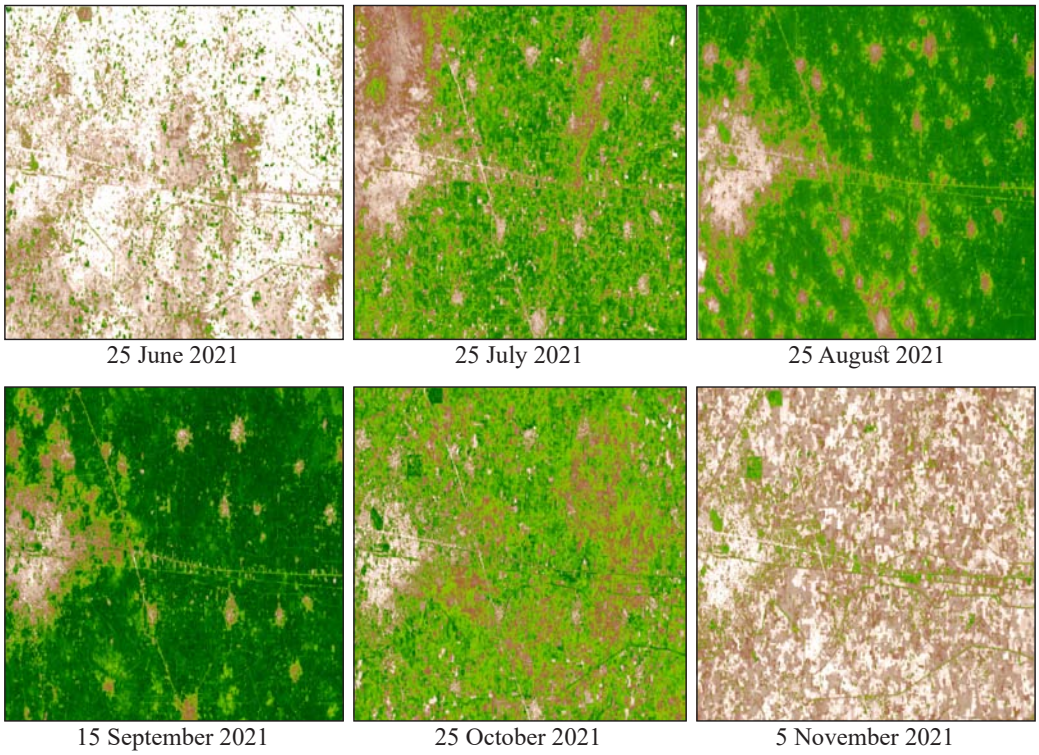
Note: The net sown area includes the extent of crops, medicinal crops, plantations, vegetables, floriculture and orchards during Kharif, Rabi and Zaid seasons. It is estimated using multi-temporal AWiFS sensor data aboard Resourcesat-1/2 satellites

Figure 6A: Kharif Crop Cycle in Moga Distrcit of Punjab, 2005



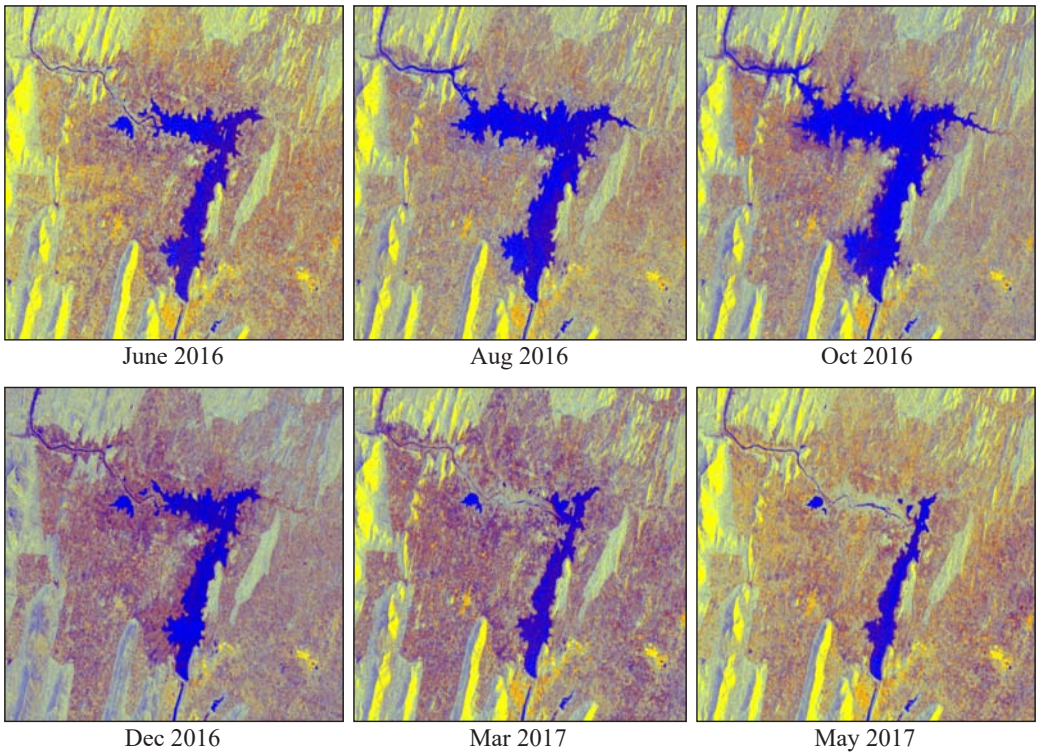
Source: ISRO, MapmyIndia

Figure 6B: Kharif Crop Cycle in Moga Distrcit of Punjab, 2021



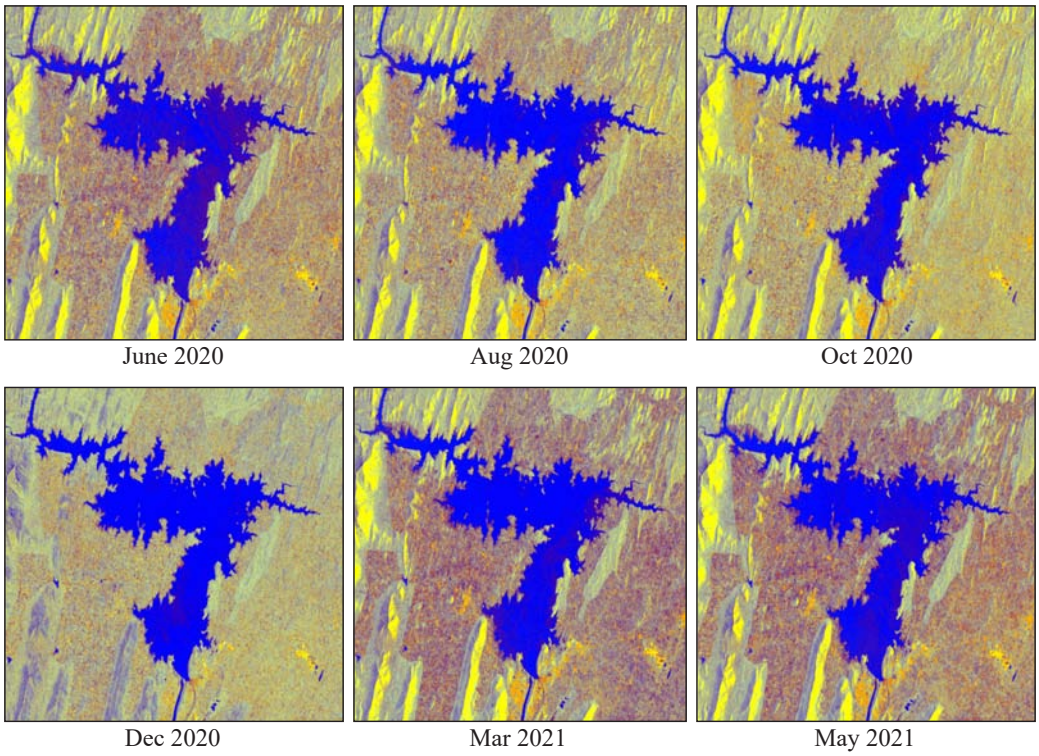
Source: ISRO, MapmyIndia

Figure 7A: Annual cycle of water storage at Stanley Reservoir, Tamil Nadu, 2016-17



Source: ISRO

Figure 7B: Annual cycle of water storage at Stanley Reservoir, Tamil Nadu, 2020-21



Source: ISRO

Figure 8A: Satellite image of Golf-course Road, Gurugram 2005

Figure 8B: Satellite image of Golf-course Road, Gurugram 2021

Source: MapmyIndia

Figure 9A: Population density in Delhi NCR 2001

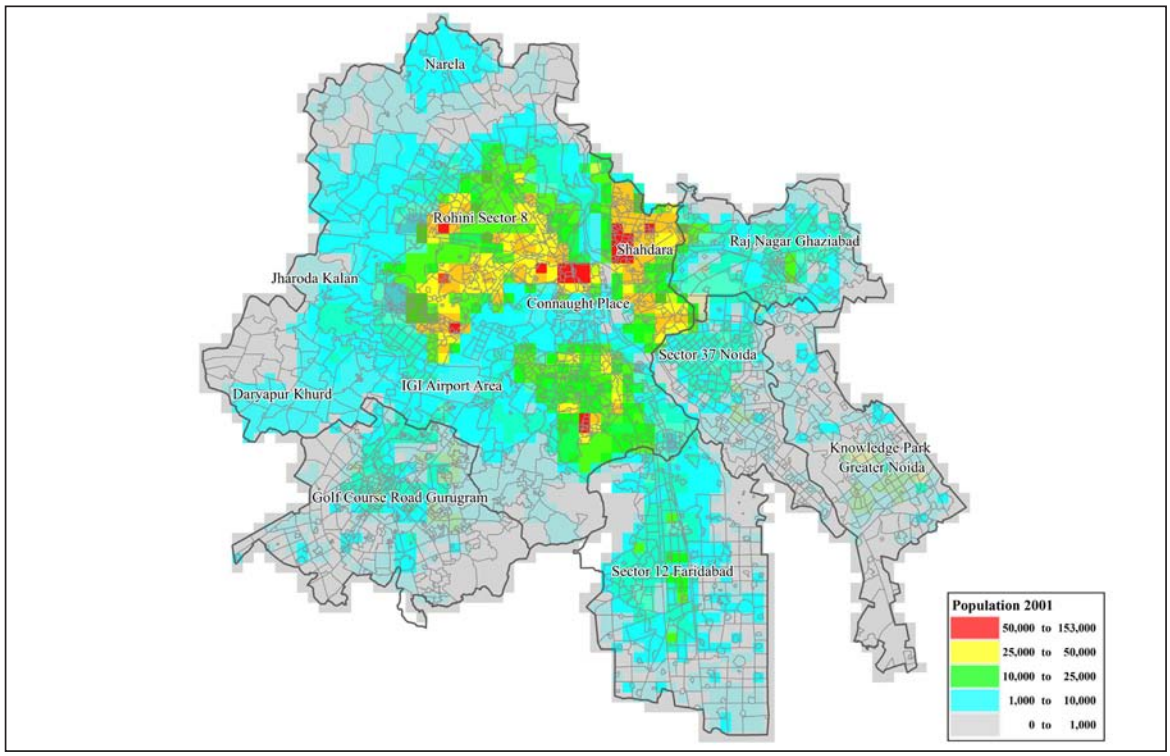
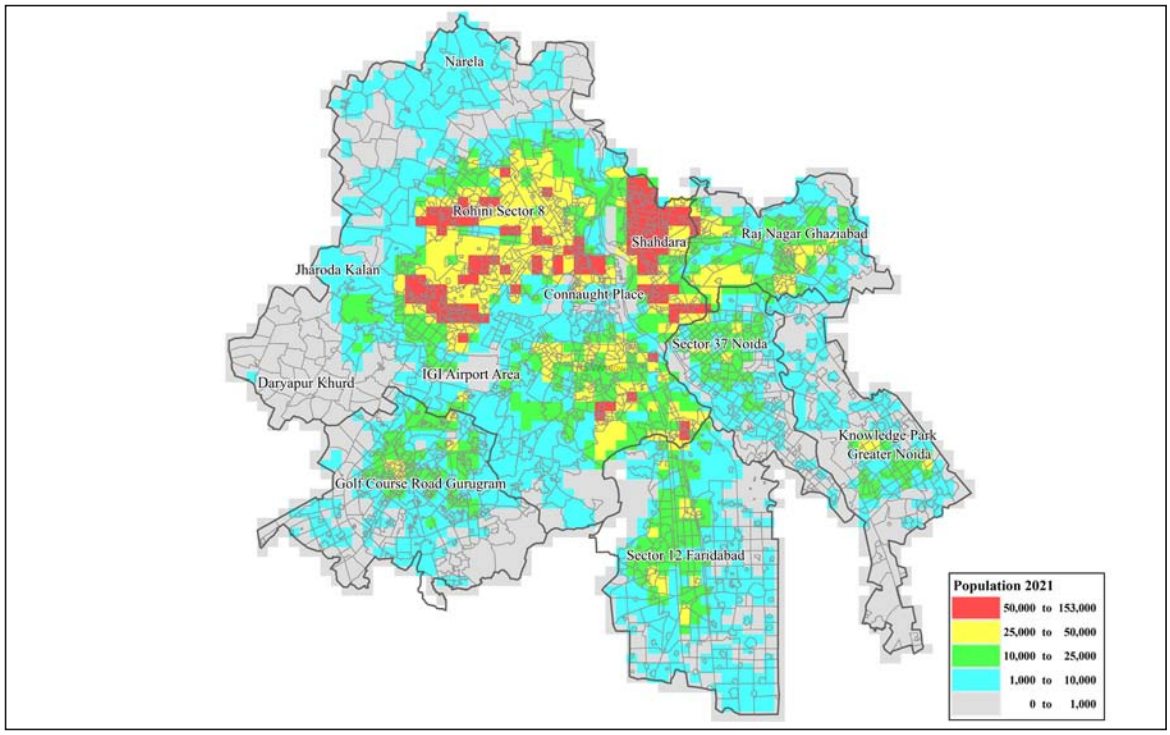


Figure 9B: Population density in Delhi NCR 2021



Source: MapmyIndia

Note : Population density has been estimated using geo-spatial mechanism and may not match census data.

Figure 10A: Satellite image of Bangmane Tech Park, Bengaluru 2002

Figure 10B: Satellite image of Bangmane Tech Park, Bengaluru 2021

Source: MapmyIndia

Figure 11A: Population density in Greater Bengaluru region 2001

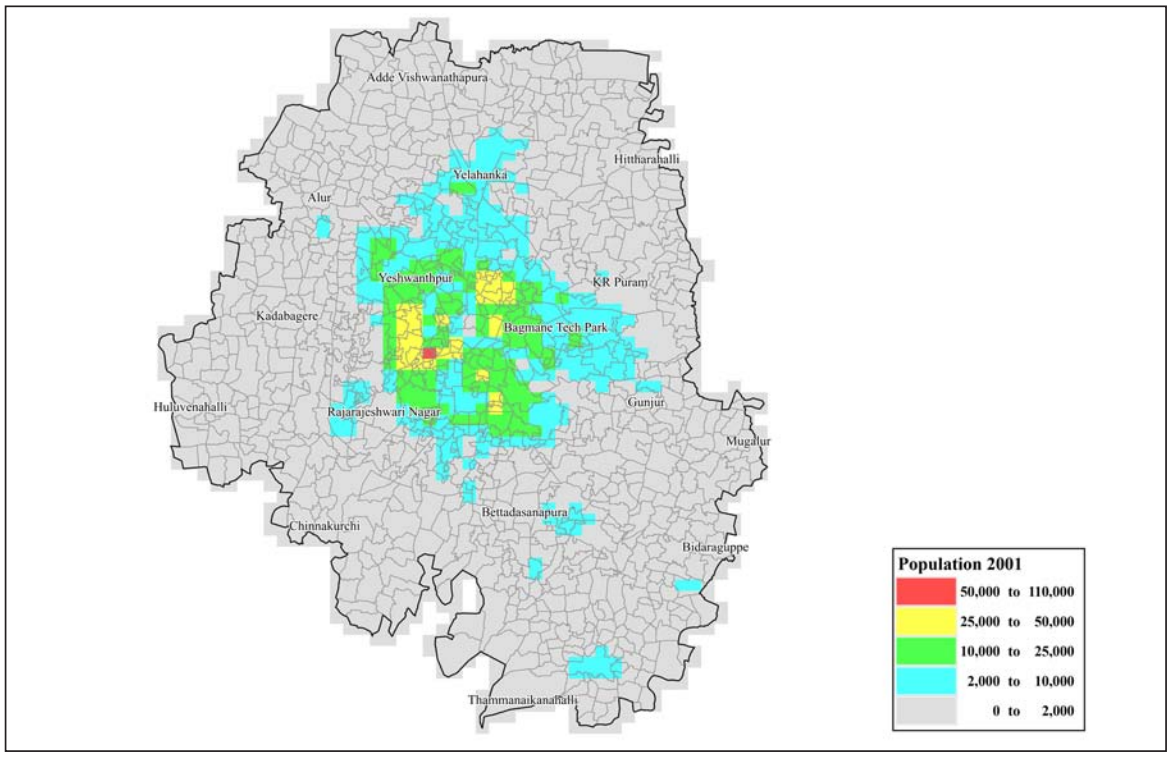
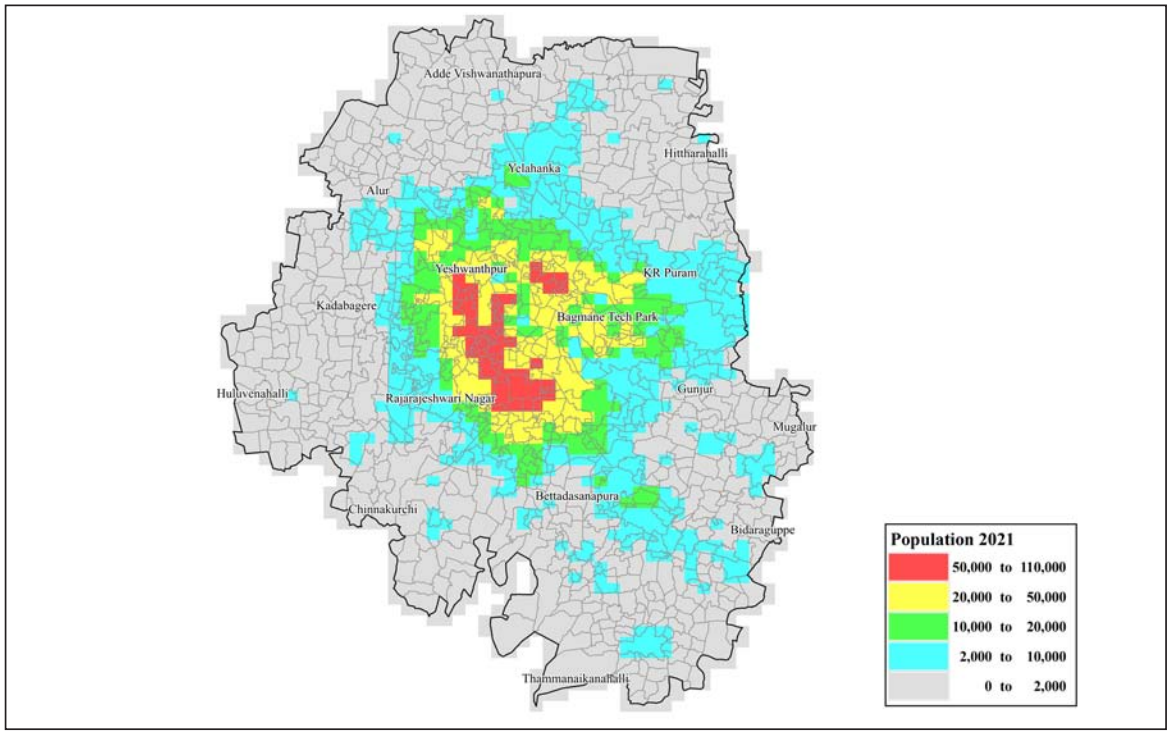


Figure 11B: Population density in Greater Bengaluru region 2021

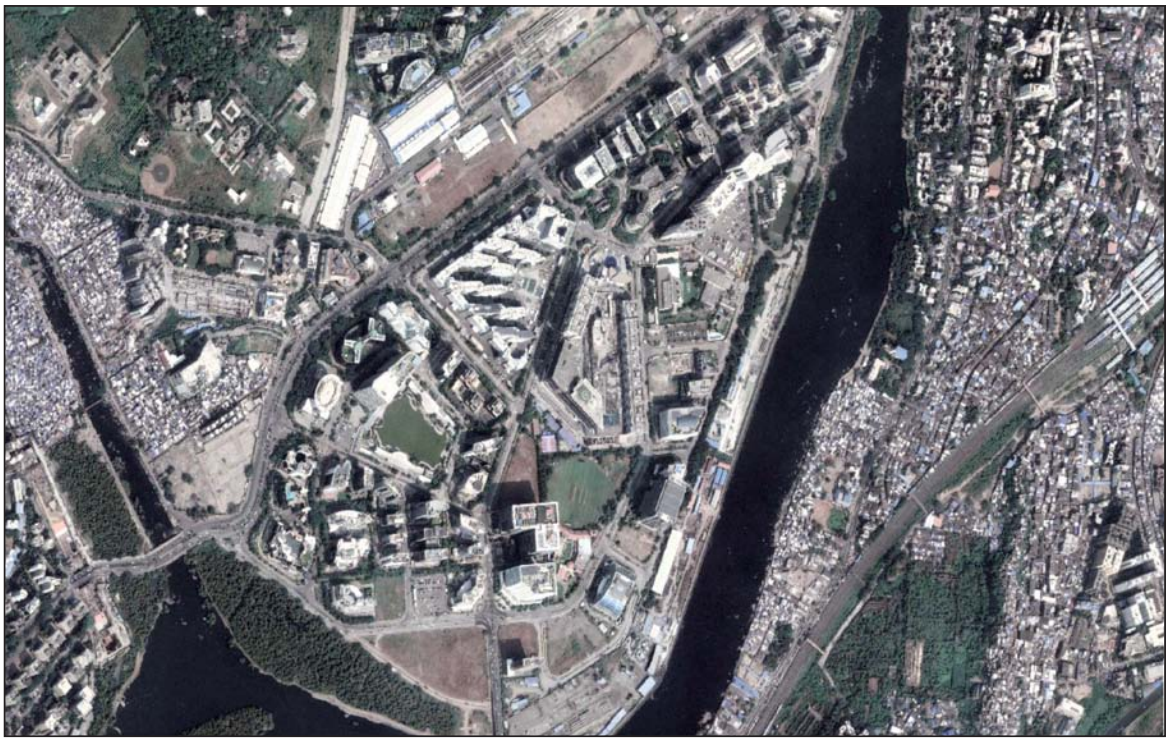


Source: MapmyIndia

Note : Population density has been estimated using geo-spatial mechanism and may not match census data.

Figure 12A: Satellite image of Bandra-Kurla, Mumbai 2001

Figure 12B: Satellite image of Bandra-Kurla, Mumbai 2021



Source: MapmyIndia

Figure 13A: Delhi Metro-rail network 2011

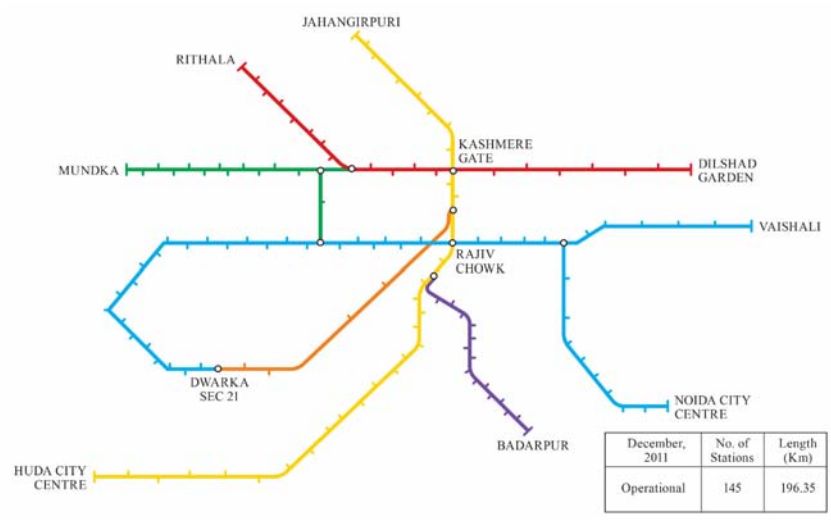
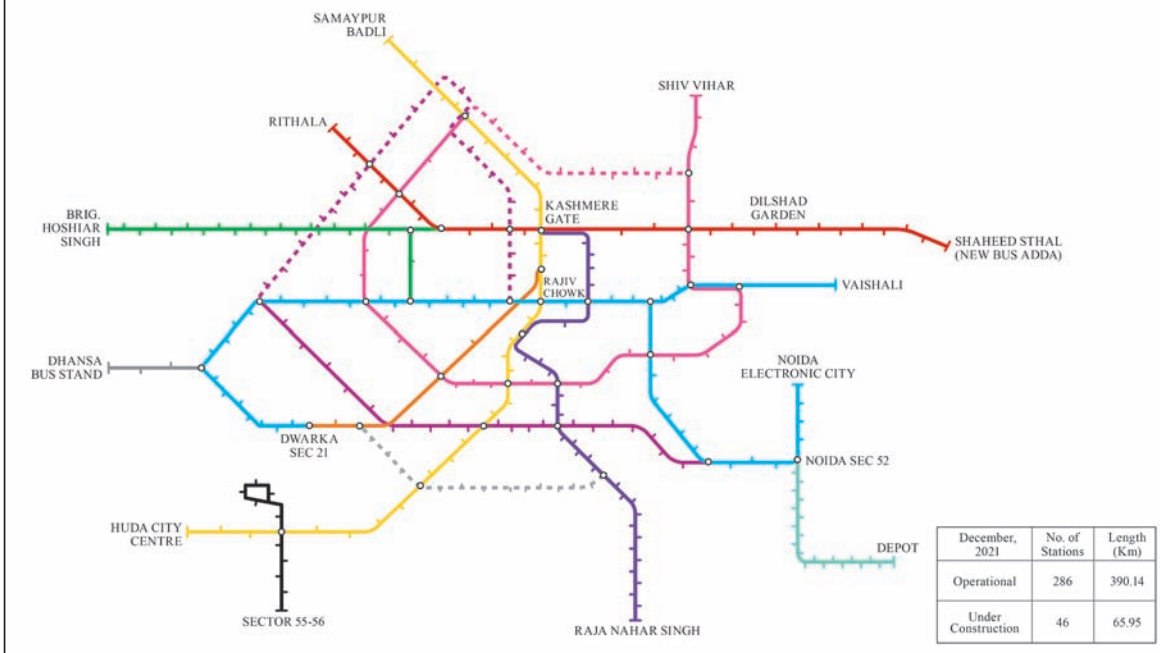
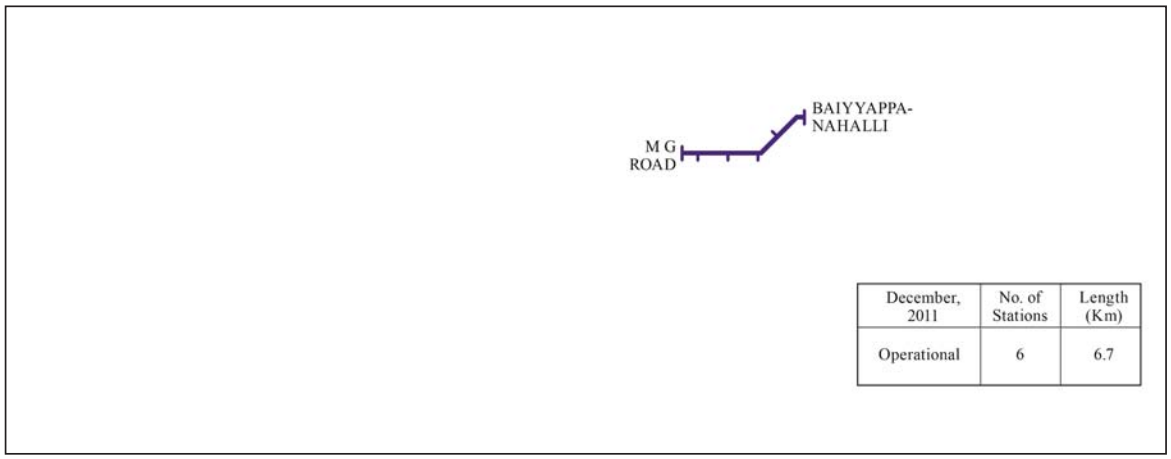


Figure 13B: Delhi Metro-rail network 2021



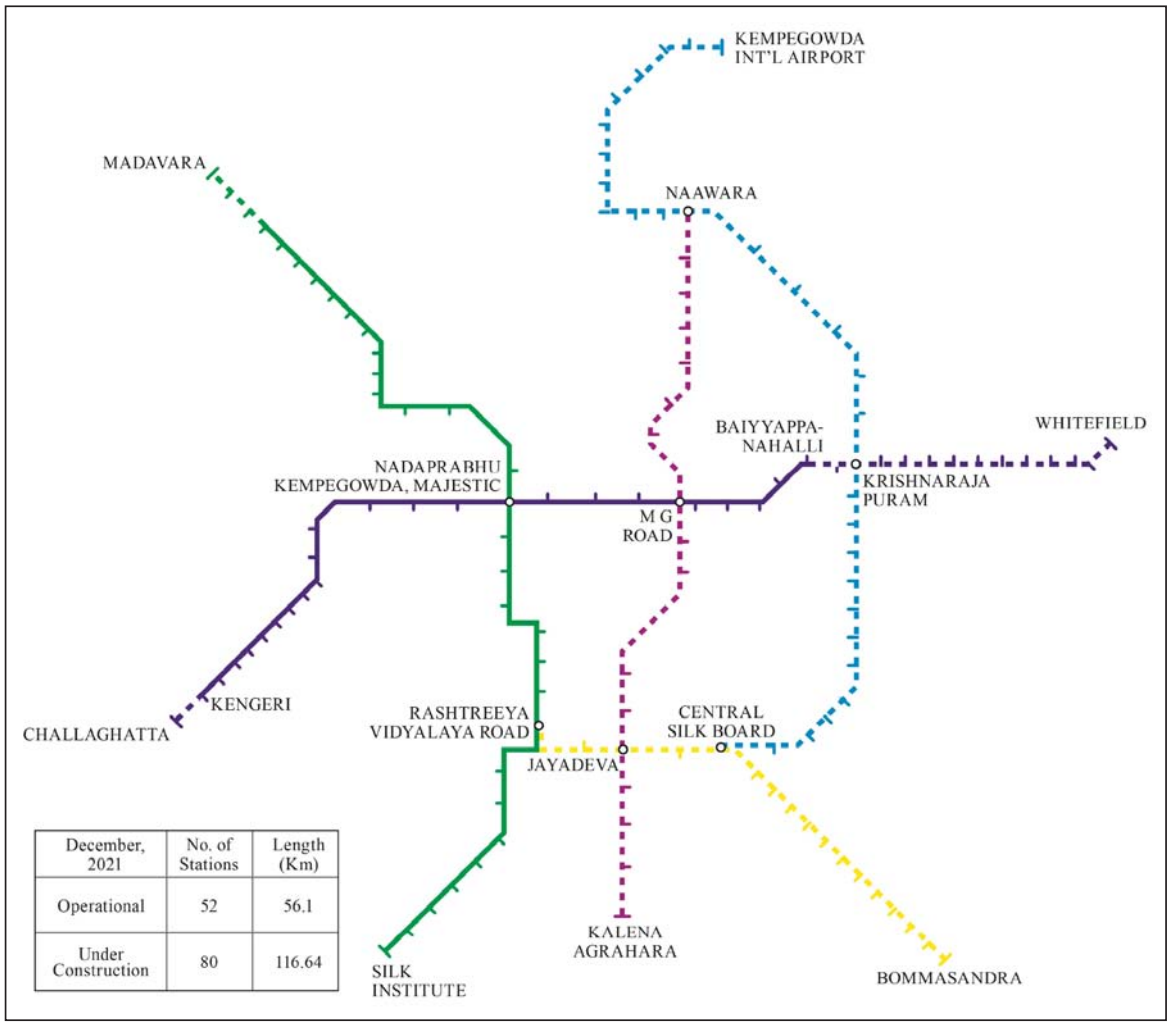
Source: Delhi Metro Rail Corporation, MapmyIndia

Figure 14A: Bangalore Metro-rail network 2011



December, 2011	No. of Stations	Length (Km)
Operational	6	6.7

Figure 14B: Bangalore Metro-rail network 2021



December, 2021	No. of Stations	Length (Km)
Operational	52	56.1
Under Construction	80	116.64

Source: Bengaluru Metro Rail Corporation, MapmyIndia

Figure 15A: Kolkata Metro-rail network 2011

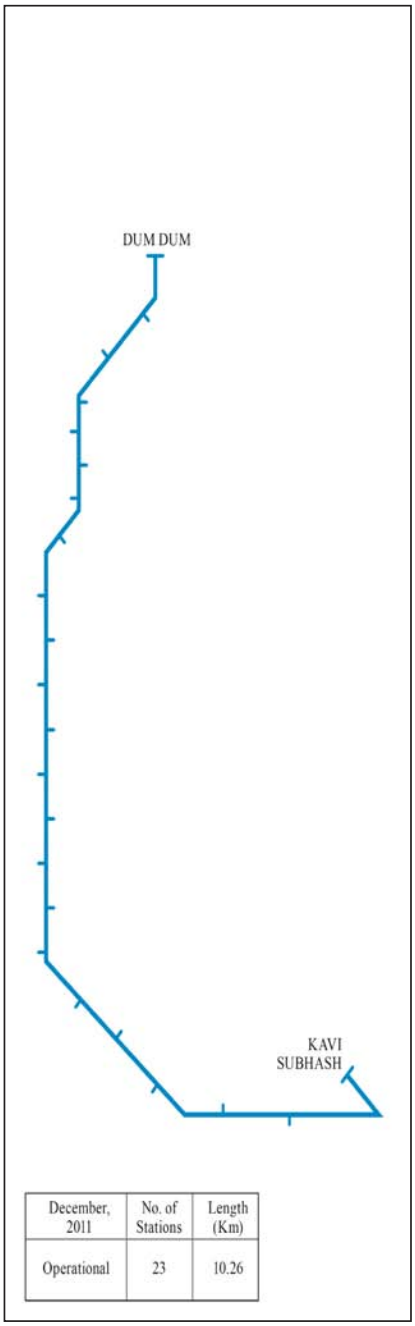
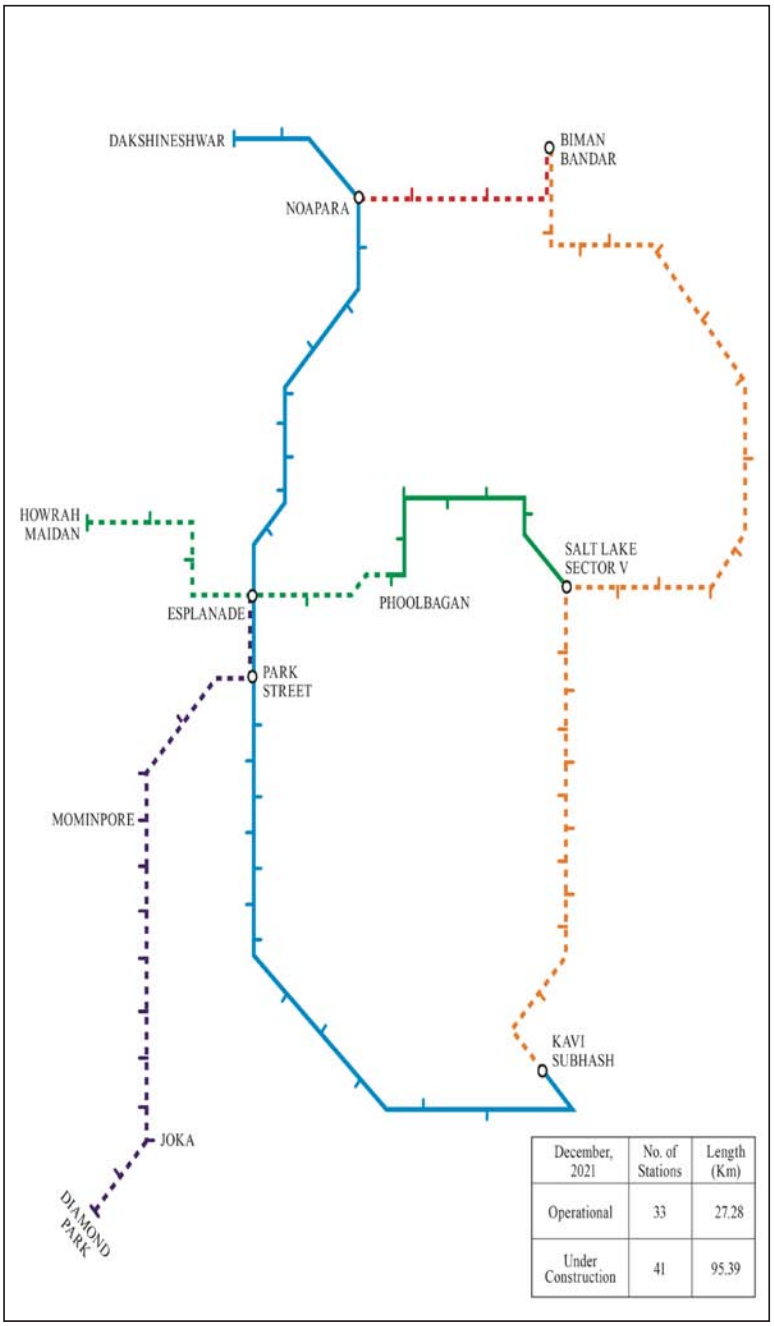
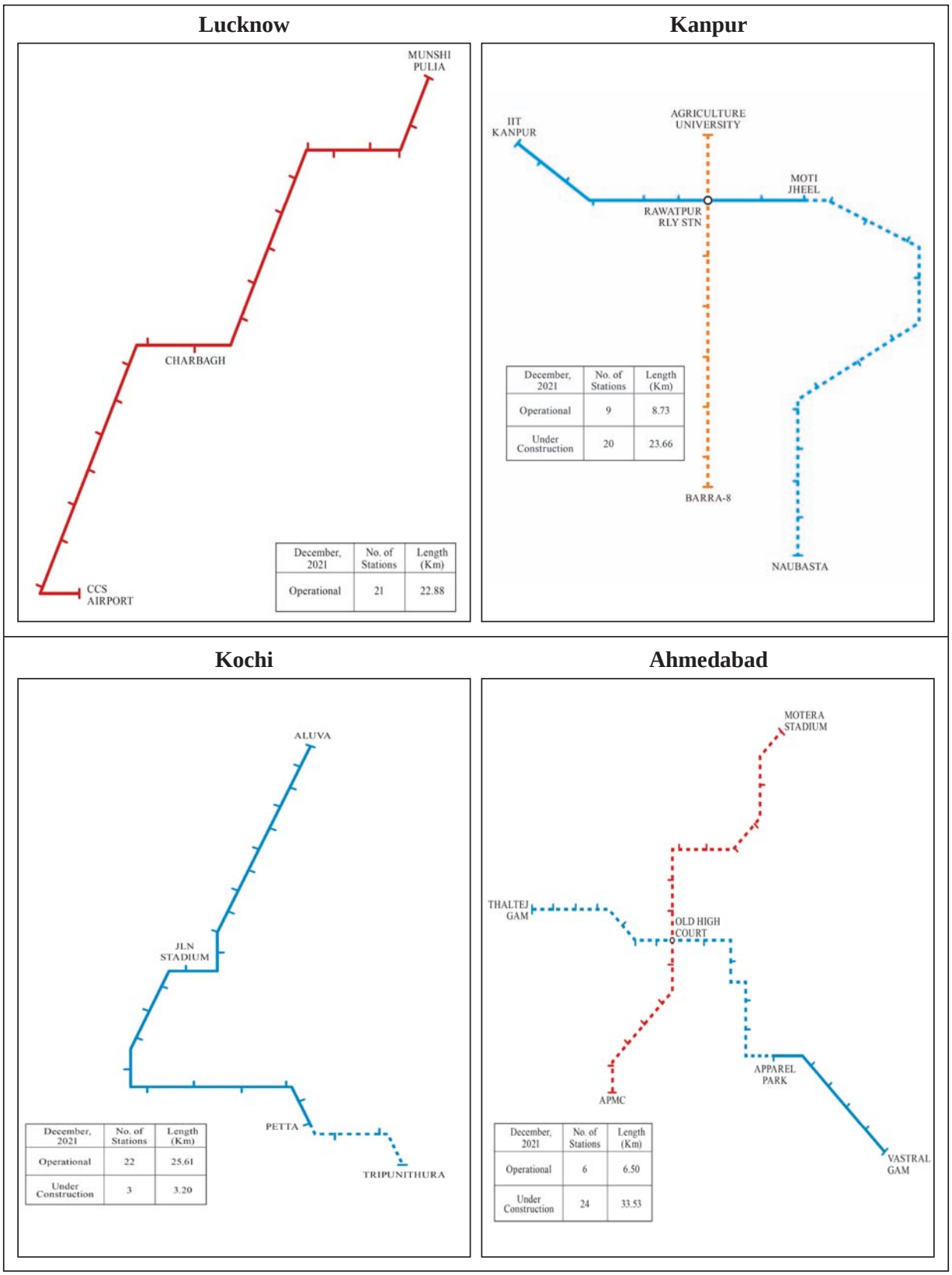


Figure 15B: Kolkata Metro-rail network 2021



Source: Kolkata Metro Rail Corporation, MapmyIndia

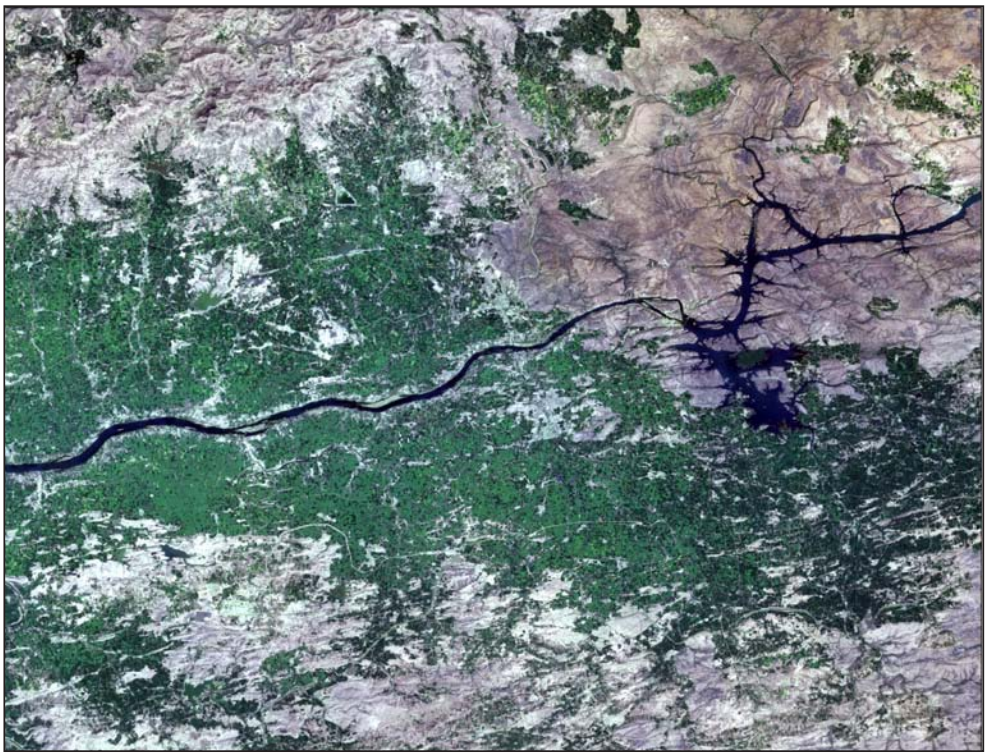
Figure 16: Metro-rail networks across different Cities 2021



Source: Uttar Pradesh Metro Rail Corporation, Kochi Metro Rail Corporation, Ahmedabad Metro Rail Corporation, MapmyIndia

Figure 17A: Satellite image of agricultural activity at Omkareshwar Reservoir, Madhya Pradesh in 2000.

Figure 17B: Satellite image of agricultural activity in 2019 following the building of better water infrastructure at Omkareshwar Reservoir, Madhya Pradesh.



Source: ISRO

Satellite image of wasteland redeployment for industrial use in Nellore, Andhra Pradesh

Figure 18A: 2009

Figure 18B: 2021

Source: ISRO

Satellite image of Solar Power Plant development in Wasteland Area, Charanka, Gujarat

Figure 19A: 2005

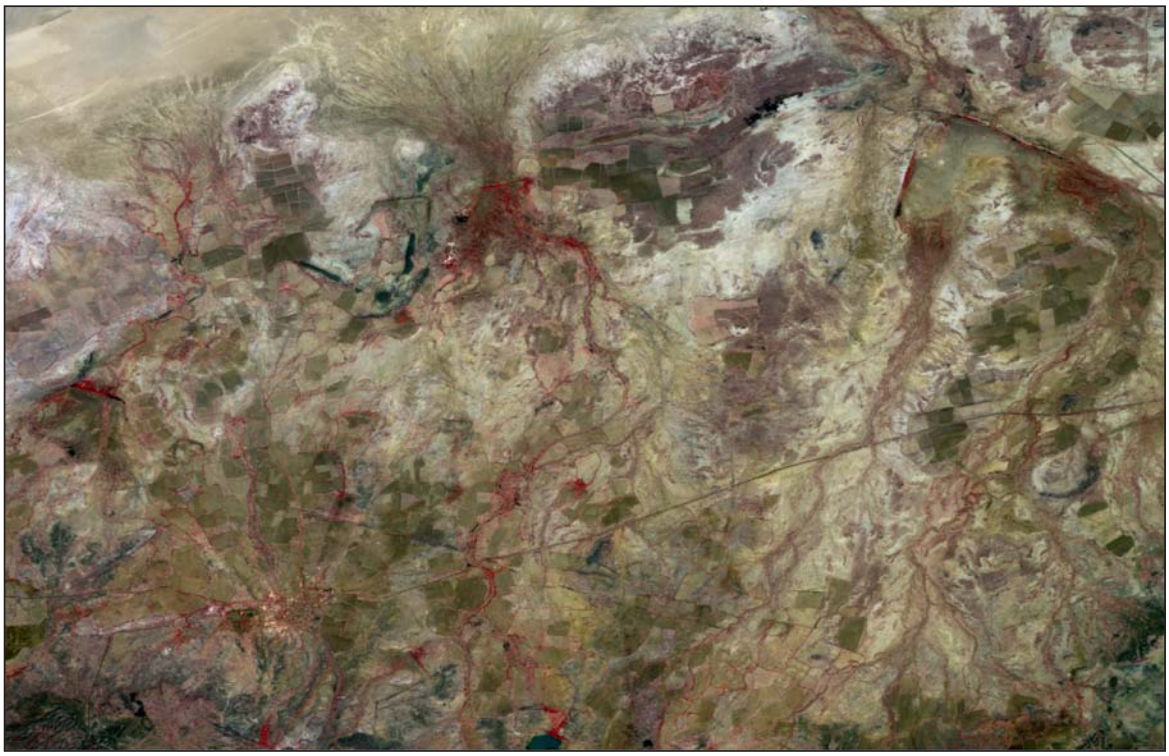
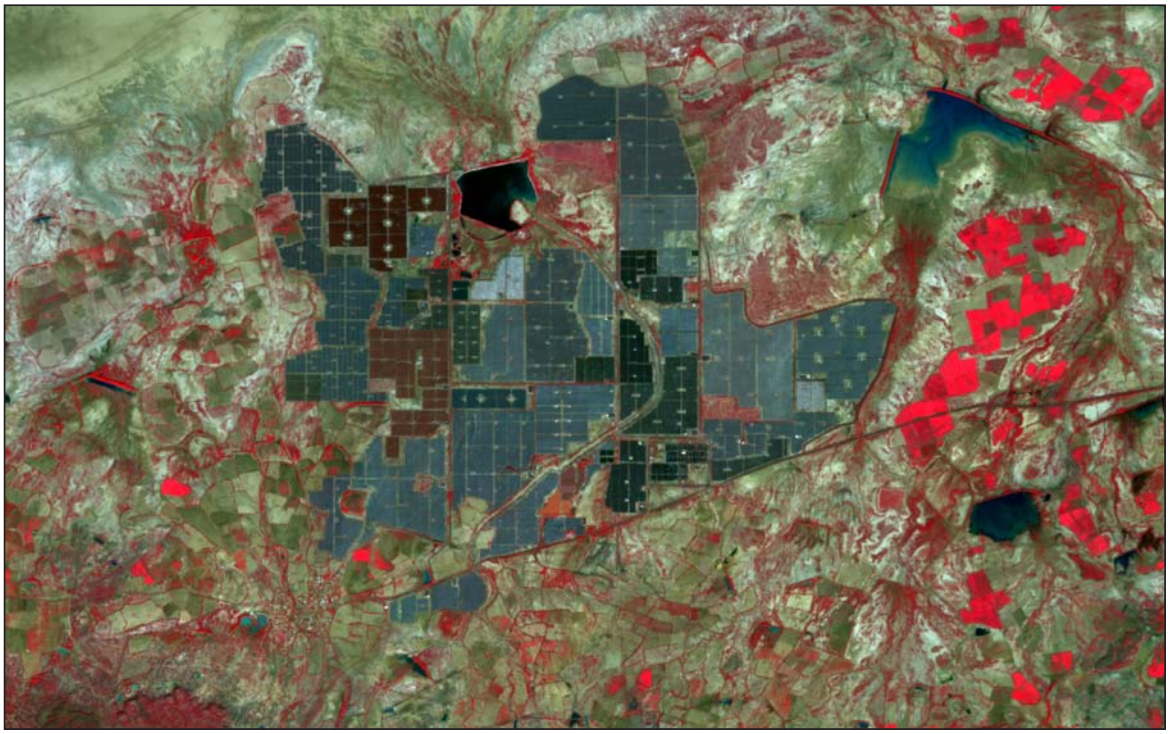


Figure 19B: 2022



Source: ISRO

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